MAPS

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of the

DEPARTMENT OF AGRICULTURE

of **PORTO RICO**

MELVILLE T. COOK, Editor.

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CARLOS E. CHARDON and RAFAEL A. TORO.

with contributions on

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PEZIZALES—F. J. Seaver; XYLARIACEAE—J. H. Miller;
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1930

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MYCOLOGICAL EXPLORATIONS OF COLOMBIA.

CARLOS E. CHARDON and RAFAEL A. TORO

The scope of the present paper is to bring up to-date our present knowledge of the fungus flora of Colombia, by reviewing the literature on the subject, followed by a critical study, in collaboration with various specialists, of collections made by the authors during the years 1926–29, and the preparation of a preliminary host index. It would be pretentious for the writers to attempt to cover the entire field of systematic mycology of such a vast and little explored country as Colombia, with such varied topographical and climatological features which explain its enormously rich flora. All that may be accomplished here is to more or less superficially cover some groups of fungi, in an attempt to make this paper a starting point for the study of the fungous flora of Colombia, which may be helpful to students subsequently interested in the subject. A few species from Panamá, collected by the senior writer, are also included in this paper.

The senior writer became interested in Colombia in 1926. At the invitation of the governor of the department of Antioquia, a visit was made to Medellin, to reorganize the "Escuela Superior de Agricultura y Veterinaria". This first trip is shown in the enclosed map (Fig. I). Landing at Puerto Colombia early in April, the ascent of the Magdalena River, from Barranquilla to Puerto Berrio was made in an airplane in a few hours time. Next day Medellin was reached by rail, after crossing the Central Andes at La Quiebra, and approximately two months were spent in that city in the reorganization of the agricultural school. A few excursions were made in the vicinity of Medellin and adjoining towns with the purpose of collecting fungi and a 5–day excursion on mule back (May 25–29) was made across the rich coffee section of Fredonia striking the Cauca River at Bolombolo. This last trip was very interesting and fruitful in botanical collections. On the way back to the coast, the trip down the Madgalena was made on one of the river boats, and a little collecting was done along the banks across Puerto Berrio, Barranca and Puerto Wilches. The return to Porto

Rico was effected the last week in June. A total of 172 numbers of fungi were collected in this first trip.

The junior writer arrived in Colombia in January 1927 and held the professorship of botany and plant pathology at the Agricultural School in Medellin until December 1928. Opportunities for collecting flowering plants [1] and fungi were plentiful, in the vicinity of Medellin, in the coffee section of Fredonia and Angelópolis (Central Andes) and in Salgar, beyond the Cauca River in the Western Andes. This last region, previously unexplored by botanists, proved to be of unusual interest. In December 1928 he was transferred to Bogotá as plant pathologist for the Ministry of Industry, a position which he held until March 1930. Being tied up with regulatory and administrative work, but little attention could be given to collecting, but a number of specimens were picked up in the Sabana de Bogotá and in Duitama, Boyacá. During October 1929, a trip was made to Tumaco and Pasto in the frontier department of Nariño. A total of 360 fungus collections were made by the junior writer.

In 1929, a second opportunity to visit Colombia was afforded to the senior writer, through an invitation from the Governor of the department of Valle del Cauca, to visit that state as the head of a commission to undertake an agricultural survey of the Cauca valley and organize an experiment station in Palmira. Mr. J. A. B. Nolla, of the Insular Experiment Station of Porto Rico, accompanied the expedition as plant pathologist, and was a very helpful collaborator in picking up parasitic fungi. The party left San Juan, P. R., on April 23, 1929, and arrived at Cristóbal, C. Z., on the 26th. A few days were spent in Panamá waiting for steamer connections. Traveling facilities were kindly supplied by Dr. Antonio Díaz, of the Department of Agriculture of Panamá, and several trips were made: one extending to the west as far as Aguadulce and the other, in company with Dr. James Zetek, to the interesting Barro Colorado Island in Gatún Lake. Our collecting in Panamá was rather scant due to the prevalent drought, but some interesting species were collected.

On May 5, the party sailed from Balboa and arrived at Buenaventura on the 7th. The Pacific coast of Colombia is exceptionally humid, an average precipitation of 360 to 380 inches annually being reported in Buenaventura. The coast is heavily forested and offers very rich collecting grounds for the naturalist. On the 9th our party crossed the Western Andes by rail and arrived at

[1] Over 1,300 specimens of phanerogams were collected and sent to Dr. N. L. Britton, New York Botanical Garden.

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Cali, where the headquarters were established for a period of two months.

Cali is the commercial center of a large extent of a rich, alluvial plain of over 3,000 sq. miles, about 3,500 feet above sea level, known as the Cauca Valley (for itinerary of this second trip see the map). Many excursions were made through the valley, as far down as Cartago, during which the spare time was used in collecting fungi. The rainfall in this plain ranges from 35 to 47 inches, and the plant growth is rather scant, but along the banks of the Cauca river it is very luxuriant and rich in fungi. Two interesting trips were also

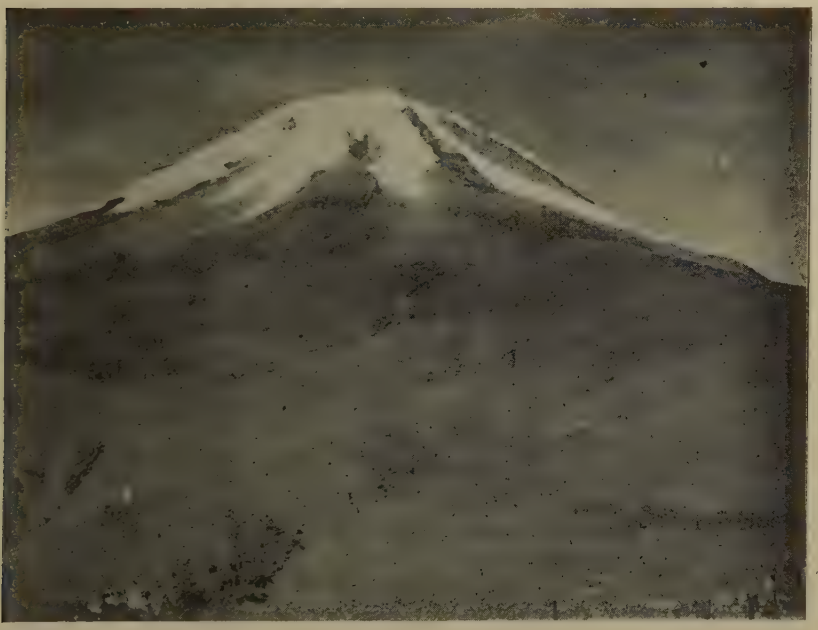

Fig. 2.—Nevado del Tolima, 18720 feet high and covered with perpetual snow is one of the highest peaks of the Central Andes.

made to the region of the Western Andes: one to Bitaco and another to the Colegio de Nuestra Señora de los Andes, reaching nearly 6,000 feet altitude. Here the rainfall averages 87 to 90 inches and the vegetation is luxuriant.

On June 18, the senior writer left Cali on a trip to Bogotá, at the invitation of the Minister of Industries, Dr. J. A. Montalvo, to attend an agricultural congress held at the capital. The trip along the Quindio, in the Central Andes, at an altitude of 11,500 feet, was most interesting and afforded opportunity to collect

around Armenia and in Ibagué. Bogotá was reached on the 22nd after a spectacular rail trip from Girardot, on the Magdalena.

Bogotá, the capital of Colombia, is located on a plateau, 8,650 feet above sea level in the Eastern Andes. It has a temperate climate with all its characteristic crops: wheat, oats, potatoes, rye, pomaceous fruits, etc. The flora is, naturally, different from all the other regions we had previously visited, and proved to be very interesting from a mycological standpoint. Unfortunately, the senior writer did not have much time to collect up there, and the excursions were limited to a few hikes to Cerro Guadalupe and Monserrate, a visit to the Experimental Farm at La Picota, and a lovely 2-day stay at the Salto de Tequendama. This temperate region of Colombia proved to be of exceptional interest mycologically, and many rare or new forms were found. It is one of the most promising collecting places known to the writers; here, for the first time, collections and observations were made on the cereal smuts and rusts of Colombia, which may be of interest to the northern phytopathologist.

On our way back from Bogotá, two days were spent in Apulo and at the San Antonio sugar mill, in the dry, warm section of Cundinamarca, and we again reached the Cauca valley, through the Quindio Pass. This finished our collecting, since the last three weeks of our stay in Cali were spent in the preparation of our report.* In this second trip, 571 numbers of fungi were collected representing a great variety of species.

Acknowledgments

The writers wish to express their appreciation to the various mycologists who have actively collaborated in the preparation of this work and contributed portions of the manuscript on the various special groups. Among these are: Dr. W. C. Muenscher, of Cornell University, on the Myxomycetes; Dr. W. H. Weston Jr., of Harvard University, on the Phycomycetes; Dr. Fred J. Seaver, of the New York Botanical Garden, on the Pezizales; Dr. J. H. Miller, of the University of Georgia, on the Xylariaceae; Dr. H. S. Jackson, of the University of Toronto, on the Ustilaginales; Dr. Charles Chupp, of Cornell University, on the Cercosporae; Dr. L. O. Overholts, of the Pennsylvania State College, on the Higher Basidiomycetes; and Dr. Frank D. Kern, of the same institution, and Professor H. H. Whetzel, of Cornell University, for the treatment of the Uredinales. The following specialists also cooperated in the iden-

* See Chardon, C. E. et al. Reconocimiento Agropecuario del Valle del Cauca. 343 págs. San Juan, P. R. 1930.

tification of species: Dr. Wm. H. Diehl, of the Bureau of Plant Industry for determinations of *Camillea*; Dr. W. C. Coker, of the University of North Carolina in the Lycoperdales; Dr. Rafael Ciferri, of Moca, Santo Domingo, for contributing one new genus and two new species and Dr. H. Sydow, of Berlin, gave helpful advice in the Dothideales and contributed three new species.

A number of phanerogamic specialists collaborated in the determination of the host plants of the collections. These were: Profes-

Fig. 3.—Salto de Tequendama, in Cundinamarca in the Eastern Andes with a fall of 435 feet.

sor B. L. Robinson and Mr. J. M. Johnson, of the Gray Herbarium, Harvard University; Dr. N. L. Britton, Dr. H. A. Gleason and Mr. Percy Wilson of the New York Botanical Garden; Dr. L. H. Bailey, of Cornell University; Dr. W. R. Maxon, Dr. S. F. Blake and Dr. J. R. Swallen of the Smithsonian Institution; Dr. E. P. Killip and Dr. A. C. Smith, of the United States National Herbarium; Professor William Trelease, of the University of Illinois and Mr. Kenneth K. Mackenzie of New York City. To all of these

the writers wish to express their acknowledgment for their cooperation.

Courtesies were received in the various herbaria visited by the writers and thanks are due to Dr. John A. Stevenson, of the Bureau of Plant Industry, Dr. H. M. Fitzpatrick, of Cornell University and Dr. F. J. Seaver, of the New York Botanical Garden for their cooperation and liberal access extended in the use of their collections. Dr. H. C. Barnhart, bibliographer of the N. Y. Botanical Garden, made valuable suggestions in the bibliography.

It is difficult to cite the long list of names of men from Colombia who in various ways cooperated and made possible our collecting expeditions. Some of these are: Dr. Ciro Molina Garcés, formerly Secretary of Industry of the Department of Valle del Cauca; Dr. José A. Montalvo, former Minister of Industry in Bogotá; General Mariano Ospina Vázquez and Dr. A. Cortazar Toledo, of the Federación Nacional de Cafeteros; Dr. Rafael Camacho, Dr. José Ma. Saenz and Dr. L. M. Murillo, of Bogotá; Dr. Rafael Durán Castro, Dr. Sebastián Ospina and Sr. Víctor Borrero, of Cali; Hermano Hilarión of the Colegio Nuestra Señora de los Andes and Hermano Apollinar María of the Colegio de La Salle, in Bogotá.

Some interest in collecting has been aroused among the extension agronomists of the Ministry of Industry and a number of specimens havè been communicated by Dr. Jorge Díaz of Bucaramanga, Dr. Vittorio Sacco of Tolima and Dr. L. Pardo Navarro of Nariño.

Professor H. H. Whetzel, of Cornell University, kept an active interest in our various expeditions to Colombia and has been a constant stimulus in our work. He distributed the specimens for their host determinations, and gave valuable advice and suggestions to the writers in the preparation and presentation of the paper. An expression of our appreciation is hereby acknowledged him for his very helpful cooperation.

Our Colombian Collections

Our complete collection of Colombian fungi, comprising 1,103 numbers, has been deposited at the herbarium of the department of plant pathology, Cornell University, Ithaca, N. Y., for permanent safekeep.

A total of 384 species of fungi of Colombia are reported here, of which 248 were previously unrecorded from Colombia and 47 are species new to science, 3 of which are from Panama. The number of species hitherto known from Colombia is 362, so the total number of fungi is increased to 610. This represents by far a small percentage of the flora and the need for further studies is self evident.

The following is the distribution of the collection with indication as to its collector, which should serve as a guide to interested students:

Nos. *1–172*, collected by Carlos E. Chardon in Antioquia and the Magdalena, during 1926 (the collector's name is usually omitted);

Nos. *173–212*, collected by C. E. Chardon and J. A. B. Nolla in Panamá in 1929 (collectors' names omitted);

Nos. *213–540* and *730–742*, collected by C. E. Chardon and J. A. B. Nolla in the Pacific Coast of Colombia, Western Andes and the Cauca Valley in 1929 (collectors' names omitted);

Nos. *541–729*, collected by C. E. Chardon in the Central Andres, Tolima and in Cundinamarca in 1929 (collector's name omitted). The collections made by R. A. Toro during 1927–29, about 360 in all, bear his name in parenthesis.

All species new to the flora of Colombia are shown by an asterisk (*) preceding its scientific name.

Review of Literature

In the bibliographical researches conducted by the writers, forty-four papers have been found dealing with the subject of Colombian mycology. A brief review of these papers follows:

1. CALDAS, F. J. DE. Memoria sobre la Nivelación de las Plantas que se cultivan en la vecindad del Ecuador *in* E. Posada, Obras de Caldas, Bibl. de Hist. Nac. **9**: 85–95. 1912 (written in 1803).

   This is the first work known to the writers in which a mention is made of a fungous disease in Colombia. Caldas, the celebrated Colombian naturalist, mentions a destructive disease of wheat, called *polvillo* and states that it is caused by "una planta parásita, semejante al musgo, que multiplicándose prodigiosamente como toda planta microscópica, ataca la caña y la espiga del trigo, le roba los jugos que iban a alimentar el grano, le debilita y le mata".

   He goes into the discussion of the influence of climatic factors in the prevalence of the disease. From the description which is made of the malady we infer that he was referring to the common wheat rust.

2. HOOKER, W. J. *in* Kunth, C. S. Synopsis Plantarum quas in plagam acquinoctialem Orbis Novi collegerunt Al. de Humboldt et Am. Bonpland, Fungi: 7–15. 1822.

   The first contribution to Colombian mycology appears to have

been made by the English botanist W. J. Hooker in this early work of Kunth and based on collections made by the celebrated naturalists Alexander von Humboldt and Amato Bonpland. A report is made of 25 species, most of them new, from the province of Cumaná (Venezuela), the kingdom of New Granada, the kingdom of Quito and the Andes of Perú. Out of these species, only 12 were collected in the territory of Colombia proper, as follows:

Sphaeria digitata Pers.=*Xylaria digitata* Fr.
Sph.? depressa Hook.
Agaricus umbilicatus Hook.=*Lentinus crinitus* (L.) Fr.
Daedalea laevis Hook.=*Fomes applanatus* Pers.
Boletus reticulatus Hook.=*Hexagona reticulata* Klotzsch.
B. tenuis Hook.=*Hexagona tenuis* Fr.
B. fibrosus Hook.=*Trametes fibrosa* Fr.
B. pavonius Hook.=*Polyporus pavonius* (Hook.) Fr.
B. purpurascens Hook.=*Polyporus purpurascens* (Hook.)
Hydnum palmatum Hook.
Thelephora badia Hook.=*Stereum cinereo-badium* Fr.
Peziza nigricans Swartz.=*Hirneola nigricans* Fr.

3. LÉVEILLÉ, J. H. Champignons exotiques (Suite). Ann. Sci. Nat. III. **3**: 38–64. 1845.

Dothidea Goudotii is described here on leaves of *Chusquea*, collected by Goudot in the Paramo of Tolima. This species is now regarded as *Roumegueria Goudotii* (Lev.) Sacc.

4. BERKELEY, M. J. Fungi *in* Clark, and J. D. Hooker. "Flora-Antartica" **1**: 169–175. 1847.

Berkeley in this early work in 1847, describes *Dothidea circumscripta* on *Vaccinium* from the Andes of Colombia. This species is now regarded as *Sphaerodothis circumscriptum* (Berk.) Th. & Syd. but has not hitherto been recollected in Colombia.

5. TULASNE, E. L. R. Fungi (de la Nouvelle Grenade). Ann. Sci. Nat. IV. **9**: 49–52. 1858.

Dothidea tinctoria is described on *Baccharis polyantha* and *B. genistelloides* from various localities in the Andean region. The species is now included under *Dothidella*.

6. LÉVEILLÉ, J. H. *In* Triana J. et J. E. Planchon. Prodromus Florae Novo-Granatensis, Fungi (Cryptogamie): 151–169. 1863–67.

The second important contribution on Colombian fungi did not appear until many years later, in 1863–67 when J. H. Léveillé contributed the fungi in Triana and Planchon's "Pro-

dromus Florae Novo-Granatensis". Some 63 species are cited here, based on collections made by Alex. Lindig, J. Triana and Just. Goudot. The species new to Hooker's list were as follows:

MYXOMYCETES.

Leocarpus vernicosus Lnk.=*Diderma vernicosum* Pers.
Enerthema muscorum Lev.=*Lamproderma scintillans* Morg.?

DISCOMYCETES.

Peziza Patena Lev.
P. flammea Alb. & Schw.=*Perrotia flammea* (A. & Schw.) Boud.
Hysterium foliicolum Fr.=*Stictis foliicola* B. & C.? both on *Clusia*.
Phacidium Clusiae Lev.=*Coccomyces Clusiae* (Lev.) Sacc.
Ph. Musae Lev.=*Coccomyces Musae* (Lev.) Sacc.
Ph. tridentatum Lev.

PYRENOMYCETES.

Meliola furcata Lev.
Hormosphaeria tesselata Lev.=*Bagnisiella tesselata* (Lev.) Cke.
Sphaeria coccinea Pers.—*Nectria coccinea* Fr.
Sph. sanguinea Pers.=*N. sanguinea* Fr.
Sphaeria sordidula Lev.
Sph. stilbostoma Fr.=*Valsa stilbostoma* Fr.
Sph. melanococca Lev.
Sph. implicata Lev.
Sph. discoidea Lev.=*Nummularia*
Sph. obesa (Fr.)=*Hypoxylon obesum* Fr.
Sph. marginata Schw.=*Hypoxylon marginatum* (Schw.)
Sph. serpens Pers.=*Hypoxylon serpens* Fr.
Chaenocarpus melanurus Lev.
Xylaria cubensis Mont.
X. Trianae Lev.
X. cylindrica Lev.
X. trachelina Lev.
X. monticulosa Lev.
X. metaeformis Lev.

BASIDIOMYCETES.

Marasmius ramealis Bull.
Lenzites myriophylla Lev.
Polyporus Lindigii Lev.
P. hymeninus Lev.=*Poria*
P. versiporus Pers.=*Poria*
P. tenax Lev.=*Poria*
P. chryseus Lev.=*Poria*
Polystictus floridanus Berk.

Polyst. candidus Lev.
Favolus granulosus Lev.
Radulum trachyodon Lev.
Stereum villosum Lev.
St. Goudotianum Lev.
St. (?) *vitellinum* Lev.
Corticium roseum Fr.

UREDINALES.

Trichobasis Oxalidis Lev.—(first rust report—*Puccinia Oxalidis*)

GASTEROMYCETES.

Lycoperdon pyriforme Pers.
Bovista fusca Lev.

IMPERFECTS.

Tubercularia depressa Lev.
Ollulla pezizoidea Lev., *Hendersonia stictica* Lev.
Rhabdospora Melastomatis Lev.

7. ANDRÉS, M. TOUR DU MONDE. **2**: 358. 1879.

A *Cordyceps* from Colombia is figured here on the larvae of a coleoptera, known under the common name of *Cuso*, which N. Patouillard (Bull. Soc. Mycol. France **11**: 229. 1885) thinks is the same as *Cordyceps cusu* Pat. from Ecuador.

8. COOKE, M. C. EXOTIC FUNGI. GREVILLEA **15**: 18. 1886.

Gleosporium Vanillae is described on *Vanilla planifolia* from Antioquia.

9. KARSTEN, P. A. ET P. HARRIOT. FUNGILLI IMPERFECTI NOVI. JOUR. DE BOTANIQUE **4**: 365. 1890.

Septogleum Clusiae is described on *Clusia* leaves from New Granada based on a collection by Lindig.

10. MASSEE, G. EXOTIC FUNGI. GREVILLEA **22**: 67–68. 1894.

Describes *Phyllosticta Anibae* on decaying fruit of *Aniba perutilis* Hemsl. from Antioquia.

11. HENNINGS, P. BEITRAGE SUR PILZFLORA SUDAMERIKAS–II. HEDWIGIA **36**: 190. 1897.

A few fungi, and two new species, are listed here, collected by Bennings, mostly from around Buenaventura. These are:

Polystictus sanguineus (L.) Meyer.
Polyporus Benningsii sp. nov.
Lentinus crinitus (L.) Fr.
Phyllachora Lehmanniana sp. nov. on *Vochysia Lehmanni* from Dolores, Tolima.

12. DELACROIX, G. Quelques Espèces Nouvelles. Bull. Soc. Myc. France **13**: 114–116. 1897.

Clanostachys Theobromae is described on fruits and twigs of *Theobroma Cacao* L. from Colombia.

13. MONTOYA Y FLORES, J. B. Recherches sur les caratés de Colombie. These. 146 pp. Paris. 1898.

The researches presented in this paper are the results of observations and studies made in Antioquia, where the violet *carate* and its numerous varieties are predominant.

The author goes deeply into the origin and nature of these skin affections and concludes that they are dermatomycoses produced by fungi of the *Aspergillus* group which are always present and easily obtainable in the skin scales of the lesions. They were obtained in pure culture.

The botanical characters of the organisms were found as follows:

1. Ash-violet *carate*. Approaches very much the *Penicillium* type of fungi.
2. Violet *carate*. A fungus was found which according to Van Tieghem was intermediate between *Aspergillus* and *Penicillium*.
3. Blue *carate*. An Aspergillus with large fruiting bodies.
4. Violet Black *carate*. A typical *Aspergillus*.
5. Black *carate*. Resembles morphologically certain species of *Microsporon*.
6. White *carate*. Resembles a *Microsporon*.
7. Red *carate*. An *Aspergillus*.

The author did not go into the specific determination of these fungi.

14. EARLE, F. S. Some fungi from South America. Bull. Torrey Bot. Club **26**: 632–634. 1899.

Prof. F. S. Earle was the first American mycologist to take an interest in the study of Colombian fungi. In 1899, he published this short paper based on collections made by C. F. Baker, near Santa Marta. He was assisted in his determinations by A. P. Morgan (in the Xylariaceae) and P. Dietel (in the Uredinales). Sixteen fungi were reported, five of which were new species, as follows:

Coleosporium Elephantopodis (Schw.) Thüm
Puccinia claviformis Thüm.
Puccinia appendiculata Wint.
Puccinia bombacis Dietel sp. nov.
Uromyces manihotis P. Henn

Uromyces cissampelis Dietel sp. nov.
Sorosporium syntherismae (Schw.) Earle.
Hymenochaete purpurea Cke. & Morg.
Auricularia nigra (Schw.) Earle.
Tryblidiella rufula (Spreng.) Sacc.?
Asterina Melastomatis Lev.?
Phyllachora graminis (Pers.) Fckl.
Apiospora sparsa sp. nov.
Hypoxylon coccineum Bull.
Hypoxylon Bakeri sp. nov.
Marsonia agaves sp. nov.

15. DELACROIX, G. Sur deux maladies du Vanillier. Bull. Soc. Myc. France **18**: 276. 1902.

Gives *Calospora Vanillae* Massee as the perfect stage of *Gloeosporium Vanillae* Cooke, after some inoculation work.

16. HENNINGS, P. Einige neue Pilze aus Costarrica und Paraguay. Hedwigia **43**: 147–149. 1904.

One species, *Dothidella Stübelii* sp. nov. is described here on *Pteris reflexa* from Bogotá collected by A. Stübel. It is interesting to note that the potato rust, *Puccinia Pittieriana* was first described here from material collected in Costa Rica by H. Pittier. This rust was found by us in Colombia and it is being reported by Kern in this paper.

17. FUHRMANN, O. ET EUG. MAYOR. Voyage d'Exploration Scientifique en Colombie. Mem. Soc. Neuch. Sci. Nat. **5**: 1–1087. 1914.

A very important event in the progress of mycological science in Colombia was the visit of the Swiss naturalists Drs. O. Fuhrmann and Eug. Mayor in 1910, and the publication, a few years later of the results of their collections and researches, with the collaboration of a number of European specialists, covering many groups of plant and animal life. A fine and interesting description of their trip is made in the introduction, which covered the Magdalena River as far as Puerto Berrio, then to Medellin, up to the Cauca, Manizales, Nevado del Ruiz, reaching again the Magdalena basin at Honda, Bogotá, and then return back through Girardot and the river. In this account, some notes are given on the coffee leaf spot (*Stilbella flavida*) and on a root disease.

The gasteromycete, *Geaster saccatus* is reported (p. 58) in a forest, near the Cauca River.

18. MAYOR, EUG. Contribution á l'étude des Uredinées de Colombie. Mem. Soc. Neuch. Sci. Nat. **5**: 442–599. 1914.

Prof. Eug. Mayor, the botanist of the expedition, and a mycologist himself, collected many fungi, specially rusts. This group was studied critically by Dr. Mayor himself a very ellaborate paper appeared covering this group. Previous to Mayor's work, only *6* rusts had been reported from Colombia. The number was increased very materially with this paper, 158 species being reported, 84 of which were described as new to science. Details about this paper will be found in Dr. Kern's treatment of the Uredinales of our collections.

19. SYDOW, H. ET P. Contribution á l'étude des Champignons parasites de Colombie. Mem. Soc. Neuch. Sc. Nat. **5**:432–441. 1914.

A study is made here of 42 species of parasitic fungi based on collections made by Dr. Eug. Mayor in 1910 in Colombia and the West Indies. A dozen new species are described. The following is the list of 39 species reported from Colombia proper.

Basidiomycetes.

1. *Exobasidium Gaylussaciae* P. Henn.

Ustilaginales.

2. *Cintractia axicola* (Berk.) Cornu.
3. *Sphacelotheca Hydropiperis* (Schum.) de Bary.
4. *Urocystis Anemonis* (Pers.) Wint.

Phycomycetes.

5. *Peronospora Borreriae* Lagh.
6. *Cystopus candidus* (Pers.) Lev.
7. *C. brasiliensis* Speg.
8. *C. Bliti* (Biv.) de Bary.
9. *C. Portulacae* (DC.) Lev.
10. *C. platensis* Speg.
11. *C. Ipomoeae-panduranae* (Schw.) Stev. & Sw.

Ascomycetes.

12. *Meliola Lantanae* sp. nov.
13. *Mycosphaerella Drymariae* sp. nov.
14. *Didymella Penniseti* sp. nov.
15. *Phyllachora peribebuyensis*=*Dothidina peribebuyensis* (Speg.) Chardon
16. *Ph. Ambrosiae* (B. & C.) Sacc.
17. *Ph. Espeletiae* sp. nov.
18. *Ph. perlata* sp. nov.
19. *Ph. Eriochloae* Speg.=*Ph. Eriochloae* var. *columbiensis* Th. & Syd.
20. *Ph. paspalicola* P. Henn.

21. *Ph. Pazschkeana* Syd.
22. *Ph. graminis* (Pers.) Fuck=*Ph. puncta* (Schw) Orton
23. *Dothidea Anthurii* Bomm. & Rouss=*Phyllachora Engleri* Speg.
24. *Montagnella Puiggarii* Speg.=*Phragmocarpella Puiggarii* (Speg.) Th. & Syd.
25. *Niptera aureo-tincta* sp. nov.
26. *Calloria quitensis* Pat.
27. *Melanochlamys leucoptera* sp. nov.

FUNGI IMPERFECTI.

28. *Macrophoma Symbolanthi* sp. nov.
29. *Darluca filum* (Biv.) Sacc.
30. *Septoria Balansae* Speg.
31. *S. inconspicua* B. & C.
32. *S. albo-maculans* Syd.
33. *Oidium erysiphoides* Fr.
34. *O. leucoconium* Desm.
35. *Cercospora Liabii* sp. nov.
36. *Heterosporium paradoxum* sp. nov.
37. *Illosporium Mayorii* sp. nov.
38. *Cerebella Paspali* Cke. & Mass.
39. *Tuberculina persicina* (Ditm.) Sacc.

20. LINDAU, G. DIE AUF KULTIVIERTEN UND WILDEN ORCHIDEEN AUFTRETENDEN PILZE UND IHRE BEKAMPFUNG. GARTENFLORA BEIL. ORCHIS **9**: 177. 1915.

The rust *Uredo Scabies* Cooke is reported on *Vanilla planifolia* from Colombia.

21. SYDOW, H. ET. P. NOVAE FUNGORUM SPECIES—XIII. ANN. MYCOL. **13**: 35–43. 1915.

Describes the smut *Entyloma Galinsogae* Syd. on *Galinsoga caracasana* based on a collection made by Eug. Mayor, in Antioqua.

22. THEISSEN, F. BEITRAGE ZUR SYSTEMATIK DER ASCOMYCETEN. ANN. MYCOL. **14**: 404. 1916.

The perisporiaceous species *Epiphyma neurophylum* sp. nov. is described on *Tibouchina*, based on collection made by Mayor, in Medellin.

23. KEISSLER, K. ÜBER PILZE AUF ORCHIDEEN IMM REICHENBACH'SEN HERBAR. BOT. CENTRALB. BEIHT. **36**[2]: 316. 1918.

Colletotrichum Orchidearum Allesch is reported on *Cattleya* and *Epidendrum macrostachum*, as from Bogotá (Bolivia). Probably an error of country.

24. FITZPATRICK, H. M. Monograph of the Coryneliaceae. Mycologia **12**: 206–267. 1920.

Corynelia orcophila (Speg.) Starbäck is reported on *Podocarpus sp.*—from phanerogamic herb. at Harvard University. "Colombia".

25. SYDOW, P. & H. Monographia Uredinearum IV. Leipzig. 671 p. 1924.

In a study of Uredinales of the world, the following species from Colombia are excluded and referred to the genus *Woroninella:*

Aecidium amageuse Mayor on *Desmodium tortuosum* and *D. cajanifolium.*

Aecidium eriosematis P. Henn. (*A. medellinense Mayor*) on *Eriosema* sp.

26. PEÑA CHAVARRIA, Y P. C. SHIPLEY. Contribución al estudio de los carates de América Tropical. Rev. Médica Latino-Amer. **10**: No. 114, 76 pp. 1925.

This is an excellent symposium on the carates of tropical America, and primarily a medical contribution. Photomicrographs are shown here of the various fungi associated with the different types of carates belonging to *Aspergillus, Trichophyton,* and *Alternaria* but the authors do not go into their specific names.

27. CHARDON, C. E. "La Gomosis" una Epidemia Grave de la Caña en Antioquia. Esc. Agric. y Vet. Medellin, Circ. No. 1. 1926.

Bacterium vascularum (Cobb.) E. F. Smith is reported as causing a widespread epiphytotic of sugar-cane gomosis. The identity of the organism was not definitely established on cultural characters, etc., but the leaf symptoms and gum exudation of the stalk was typical.

28. CHARDON, C. E. and R. A. TORO. Plant Disease notes from the Central Andes. Phytopath. **17**: 147–153. 1927.

This is a progress report on the plant diseases found by Chardon in the Central Andes of Antioquia in 1926. A number of fungi associated with plant diseases are given, of which the following were additions to the flora:

Rosellinia bunodes B. & Br. (*Dematophora* stage).
Capnodium brasiliense Pat. & Maubl.
Kuehneola Fici.

Melanconium Sacchari Massee
Leptosphaeria Sacchari Br. de Haan.
Sphaceloma Fawcetti Jenkins
Pestalozzia palmarum Cooke.
Septoria Lycopersicci Speg.
Phyllachora gratissima Rehm.

29. GAUMANN, ERNST. Mykologische Mitteilugen III. Ann. Myc. **25**: 167–176. 1927.

This paper is a revision of the genus *Woroninella,* to which genus the author refers some species of *Aecidium* described by Mayor from Colombia. *Aecidium medellinense* Mayor is a synonym of *A. eriosematis* P. Henn. and should be known as *W. eriosematis* (P. Henn.) Sydow and *A. amagense* Mayor is recognized as *W. amagense* (Mayor) Sydow.

30. KERN, F. D. and C. E. CHARDON. Notes on Some Rusts of Colombia. Mycologia **19**: 268–276. 1927.

Thirty three species of rusts collected by Chardon, mostly from Antioquia, are cited here. No new species are recorded, but 10 of them are new to the Mayor list, and four are reported new to South America.

31. TORO, R. A. Enfermedades y plagas de plantas. Esc. Agric. y Vet. Medellin Circ. No. 4, 33 pp. 1927.

Reports *Cercospora Henningsii* Allesh. on Manihot, *Sclerotium Rolfsii* Sacc. on tomato, *Gleosporium musarum* Cooke on banana and *Phytophthora infestans* (Mont.) de By. on potatoes.

32. TORO, R. A. Un nuevo ascomiceto Colombiano. Bol. Soc. Colombiana Hist. Nat. **16**: 154–156. 1927.

A new species, *Echidnodes Caicedoiana* on leaves of *Caonopia latifolia* is described from Colombia based on material collected by C. E. Chardon at Barranca Bermeja.

33. CHARDON, C. E. Contribución al estudio de la Flora micológica de Colombia. Bol. Real Soc. Esp. Hist. Nat. **28**: 111–124. 1928.

This paper comprises a critical study of the fungi,—except the rusts—collected by Chardon in Antioquia and in the Magdalena River in 1926. Thirty-two species are reported new to Colombia and 6 new to science, as follows:

Myxomycetes.

1. *Stemonitis splendens* Rost.
2. *Lycogala epidendrum* (L.) Fries

PHYCOMYCETES.

3. *Pseudoperonspora cubensis* (B. E. C.) Rost.

DISCOMYCETES.

4. *Ascophanus testaceus* (Moug.) Phill.

PYRENOMYCETES.

5. *Irene longipoda* (Gaill.) Toro.
6. *Irene Perseae* (Stevens) Toro.
7. *Lembosia Melastomatum* Mont.
8. *Polystigma nigro-viride* Rehm.
9. *Hypocrea rufa* (Pers.) Fr.
10. *Creonectria ochroleuca* (Schw.) Seaver.
11. *Phyllachora cornispora-necrotica* sp. nov.
12. *Ph. puncta* (Schw.) C. R. Orton
13. *Ph. Ischaemi* Syd.
14. *Ph. microstroma* sp. nov.
15. *Ph. antioquensis* sp. nov.
16. *Ph. Mayorii* sp. nov.
17. *Ph. microspora* sp. nov.
18. *Ph. Maydis* Maubl.
19. *Gnomonia Ospinae* sp. nov.
20. *Hypoxylon cohaerens* (Pers.) Fr.
21. *H. rubiginosum* (Schw.) Sacc.
22. *H. haematitis* Lev. var. *microspora* Th.
23. *Daldinia concentrica* (Bolt.) Ces. de Not.
24. *Poronia oedipus* Mont.
25. *Xylaria polymorpha* (Pers.) Grev. (This is *X. rhizocola* Mont.)

USTILAGINALES.

26. *Ustilago Zeae* (Beckm.) Unger.

UREDINALES. (In a separate paper by Kern and Chardon)

BASIDIOMYCETES.

27. *Auricularia Auricula—Judae* (Bull.) Schroet.
28. *Daedalea repanda* Pers.
29. *Polyporus pinsitus* Fries.
30. *Trametes hydnoides* (Sw.) Fr.

FUNGI IMPERFECTI.

31. *Cercospora portoricensis* Earle
32. *C. rigospora* Atk.

34. TORO, R. A. LA PEQUERA DE LOS NARAŃJOS. BOL. SOC. ANTIOQUEÑA AGRIC. MEDELLÍN. 1928.

Reports *Hypocrella turbinata* (Berk.) Petch abundant on the scale insects on Citrus.

35. CHARDON, C. E. New or Interesting Tropical American Dothideales—II. Jour. Dept. Agric. Porto Rico **13**: 3–15. 1929.

Notes and descriptions are given here of 20 species of Dothideales from tropical America, five of which are from the Antioquian Andes, based on collections made by Toro, as follows:

Bagnisiopis tijucensis Th. & Syd.
Achorella Toroana sp. nov.
Dothidina sphaerospora sp. nov.
Robledia tetraspora gen. et sp. nov.
Sphaerodothis antioquensis sp. nov.

36. SEAVER, F. J. Studies in Tropical Ascomycetes—VI. Mycologia **21**: 178–179. 1929.

Seaver describes and figures a beautiful and interesting species, *Phyllachora Pennelli*, on the leaves of an unknown tree, collected in the Sinu river by F. W. Pennell, and in a latter publication referred it to *Phyllachora Simabae Cedronis* Syd.

37. TORO, R. A. Notas Micológicas Colombianas. Rev. Soc. Col. Ciencias Nat. **18**: 42–43. 1929.

Notes are given here on three rusts collected by the writer, one of them *Trichobasis Oxalidis* Lev. which is now referred to *Puccinia Oxalidis* (Lev.) Diet. & Ellis. and *Milesina Danstaedtiae* Diet. which is changed to *Milesia Danstaedtiae* (Diet.) comb. nov.

38. TORO, R. A. Nota preliminar sobre las enfermedades del cacao en Zarzal. Rev. Nac. Agric. Bogotá **25**: 114–126. 1929.

This paper on cacao diseases reports the *Monilia* disease in the Cauca Valley. Also a *Colletotrichum* and *Diplodia* associated with pod-rot.

39. TORO, R. A. Plant Disease notes from Central Andes. Phytopath. 19: 969–974. 1929.

Nectria tropica (Woll.) Toro (on coffee).
Thielaviopsis paradoxa (Desm.) v. Hohn on Cane.
Alternaria Brassicae (Berk) Sacc. on cauliflower.
Mycosphaerella brassicicola (Duby) Lindau on cabbage.
Cercospora longissima Cug. on lettuce.
Colletotrichum gloeosporioides Penz. on mango.
Heterosporium echinulatum (Berk) Cooke on carnation.
Penicillium digitatum (Pers) Sacc. on oranges.
Cercospora Capsici H. & W. on pepper.
Helminthosporium Ravenelli Curt. on *Sporobolus*.
Asperisporium Caricae (Speg.) Maub. on papaya.

40. TORO, R. A. El Enrollamiento de las hojas de durazno Rev. de Industrias (Bogotá) **5**: 261–263. 1929.

A report is made here of the peach leaf curl a common disease in the Sabana de Bogotá and caused by *Taphrina deformans* (Berk.) Tul.

41. TORO, R. A. Una epifitotia del Café en Cúcuta. Rev. de Industrias (Bogotá) **5**: 304–305. 1929.

A report is made here on the occurrence of a thread blight or koleroga disease of coffee caused by *Corticium koleroga* (Cooke) v. Höhn in the coffee section of Cúcuta.

42. TORO, R. A. El polvillo del trigo. Rev. de Industrias (Bogotá) **6**: 120–121. 1929.

The wheat rust, *Puccinia graminis* Pers. is reported as common on wheat in the Sabana de Bogotá.

43. TORO, R. A. Una nueva enfermedad de la alfalfa. Rev. de Industrias (Bogotá) **6**: 121–122. 1929.

The fungus *Pseudopeziza medicaginis* (Lib.) Sacc. is reported attacking alfalfa in the Sabana de Bogotá.

44. CHARDON, C. E. ET AL. Reconocimiento Agro-Pecuario del Valle del Cauca. 343 pp. San Juan. 1930.

This recent publication embodies the report of the Porto Rican agricultural commission on the agricultural possibilities of the Cauca Valley. Observations are made on the occurrence and prevalence of plant diseases, most of which are to be credited to Mr. J. A. B. Nolla, the pathologist of the expedition. Fourteen species of fungi, new to the Colombian flora are reported, as follows:

Pythium de Baryanum Hesse on tobacco and eggplant.
Phytophthora Nicotianæ Breda de Haan on tobacco.
Colletotrichum Gossypii South (doubtful) on cotton.
Septoria Apii (Br. & Cav.) Rostrup on *Apium*.
Helminthosporium Oryzæ Breda de Haan on rice.
Phomopsis vexans (Sacc. & Syd.) Harter on eggplant.
Diplodia Theobromæ (Pat.) Nowell on cacao.
Macrosporium Porri E. on onion.
Colletotrichum lindemuthianum (S. & M.) Br. & Cav. on bean.
Gloeosporium limetticolum Clausen on lime.
Penicillium italicum Wehner, on oranges.
Alternaria Solani (E. & M.) Jones & Gr. on potatoes.
Colletotrichum nigrum E. & H. on pepper.
Plasmopara viticola (B. & C.) Berl. & Toni on grape.

MYXOMYCETES

W. C. Muenscher *

Comparatively little work has been done on the Myxomycetes or "slime moulds" of South America, and curiously enough, the first report on the species of this group, appear to be from Colombia. Leveille (**14**) in 1863–67, reported (pag. 158) two species: *Leocarpus vernicosus* (*Diderma vernicosum* Pers.), collected at Tequendama, and *Enerthema muscorum* Lev., collected at La Mesa, San Antonio, both collections made by Lindig.

Sturgis (**29**) cited the earlier collections made in South America and reports sixty species from Argentina and Chile collected by Professor Roland Thaxter in 1905–. Lister (**15**) recorded about fifty species from South America of which twenty were found in Chile, eight in Brazil, three in Venezuela, and one in each of the following countries: Argentina, Bolivia, Ecuador, Paraguay and Perú. Gilbert (**11**) has reported fourteen species from British Guiana and Surinam. None, but the two above cited species, seem to have been recorded from Colombia. This would seem to indicate that they have not been collected to any extent in Colombia. In view of the fact that many species of Myxomycetes are rather cosmopolitan in their distribution, intensive field work should reveal a considerable number of species in an area as large and varied as Colombia.

The following brief list of species, based upon a few incidental gatherings made by Chardon and Nolla, is only a beginning towards a catalog of the Myxomycetes of Colombia. More intensive and extensive field work on this group will probably multiply the list several times.

*1. Physarum javanicum Racib., Hedwigia **37**: 53. 1898.

On debris of *Zea mays* L.

El Valle: Todos los Santos, between San Pedro and Buga, No. *411*, June 4, 1929.

Craterium sp.

This small gathering consists of the remains of over mature sporangia. MacBride suggested that it may be a new species near *Craterium cylindricum* Massee, but better material is necessary to make a specific determination certain.

On wood.

Santander: Magdalena River across Puerto Berrío, No. *128*, June 15, 1926.

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* Contribution from the Department of Botany, Cornell University.

2. STEMONITIS SPLENDENS Rost. Sluz. Monog. 195. 1875.
On dead trunk.
SANTANDER: Magdalena River, across Puerto Rico, No. *130*, June 15, 1926 (det. J. T. MacBride).
EL VALLE: Hacienda Riopaila, S. of Zarzal, No. *392*, May 31, 1929.

*3. HERMITRICHIA CLAVATA (Pers.) Rost. Suz. Monog. 264. 1875.
Only a few sporangia were found among *Arcyria denudata* Wetts.
On a decaying log.
EL VALLE: Bamboo forest near San Pedro, N. of Buga, No. *413*, June 4, 1929.

*4. ARCYRIA CINEREA (Bull.) Pers. Syn. Fung. 184. 1801.
On decaying wood.
EL VALLE: College N. S. de los Andes, above Cali, No. *466*, June 9, 1929; Bamboo forest near San Pedro, N. of Buga, No. *412*, June 4, 1929.

*5. AROYRIA DENUDATA (L.) Macbr. N. Am. sl-moulds 195. 1899.
On decaying logs.
EL VALLE: Hacienda Riopaila, S. of Zarzal, No. *390*, May 31, 1929; Bamboo forest near San Pedro, N. of Buga, No. *413*, June 4, 1929.

6. LYCOGALA EPIDENDRUM (L.) Fr., Syst. Myc. **3**: 80. 1829.
On dead wood.
EL VALLE: Along Cauca River, near Cali, No. *734*, May 21, 1929.

PHYCOMYCETES.

WM. H. WESTON JR.*

The list of Phycomycetes comprised in this series, although not a very extensive one, compares very favorably in number and interest with those of similar collections reported in recent years from Central and South American regions or from islands in the Caribbean,—collections such as those of Stevens (**28**) from Costa Rica and Panamá, Ciferri (**7**) from Santo Domingo, or Seaver and Chardon (**22**) from Porto Rico. Moreover, it adds appreciably to the representatives of this group previously reported from Colombia. Sydow (**31**) in his enumeration of the fungi collected by Mayor lists but seven species, (1 Peronospora and 6 Albugos), while the present collection comprises 16 (Synchytrium 2, Albugo 7, Phytophthora 2,

* Contribution from the Laboratory of Crytogamic Botany, Harvard University.

Plasmopara, Pythium, and Peronoplasmopara, each 1, and Mucorales, 2). Two of Sydow's are lacking here—*Peronospora Borreriæ*, a rare form scantily known only from Lagerheim's (**19**) original description of conidial material from Ecuador, and from Sydow's record of its occurrence in Colombia, and *Albugo platensis* Speg. which usually is represented in collections from the American tropics, and which Mayor secured in 4 numbers, although only from the Department of Bolívar.

As is wholly natural, the present list comprises chiefly the more obvious parasitic forms which could be gathered in the course of a journey through such a region. Consequently it includes certain species, such as *Albugo candida*, *A. Bliti*, *A. Tragopogonis*, and *A. Portulacæ*, among the Albuginaceæ; and *Plasmopara viticola* and *Peronoplasmopara cubensis*, among the Peronosporaceae, which are common and world-wide in their distribution. Yet, on the other hand, it contains *Synchytrium æquatoriensis* hitherto known only from Ecuador from which it was described in 1914 by Sydow (**30**) and from which it had been reported in 1891 by Lagerheim (**19**) as *Synchytrium æcidioides*. Moreover, it includes two species apparently undescribed hitherto, one on *Phaseolus vestitus* Hook. *Synchytrium Phaseoli*, a noteworthy form belonging to the Woroninella—subgenus of Synchytrium,—of which various representatives are widely distributed in the tropics, and the other *Albugo Chardoni*, a most striking and distinctive species on *Cleome anomala*, H. B. K., a host species on which hitherto no Albugo has been reported, even though *Cleome graveolens* and other members of the Capparidaceæ have been reported as hosts for the common species, *Albugo candida*, from which this is sharply differentiated by the distinctive thickening of its conidial wall.

Obviously the region is one of considerable potentialities with respect to interesting Phycomycetes. Our knowledge of this class of fungi in any territory always begins with collections such as this, of orders such as the Peronosporales which occur on crop plants or weeds along the lines of travel and can be secured for study by the simple procedure of making herbarium specimens of their hosts. Such orders as the Ancylistales, Blastocladiales, Monoblepharidales, Leptomitales, and Saprolegniales, which are all primarily aquatic and require a special technique of collecting or trapping and long-continued intensive investigation for adequate description, await study with promise of reward. Also the aerial representatives such as the Mucorales, which rarely strike one's attention in nature and usually must be isolated, cultured, and studied under suitable condi-

tions in the laboratory; the Entomophthorales, which demand considerable knowledge of the habits of their insect hosts for collection and special culture methods for study, and the Endogonales, whose inconspicuous growth and typically subterranean habitat result in their scanty representation in collections even in temperate regions long worked over intensively by mycologists,—all these probably will prove rich fields for investigation in this country in which so promising a start has been made.

Order I.—CHYTRIDIALES.

Family 1.—Synchytriaceæ.

*7. Synchytrium aequatoriensis (Syd.) Gäumann, Ann. Mycol. **25**: 172. 1927.

Woroninella æquatoriensis Syd., Ann. Mycol. **12**: 486. 1914.

Sydow (**30**) when establishing this species from Ecuador gave the diameter of the sporangia within the sorus as from 20 to 28 u. In this Colombian material this same range in size is encountered, but as extreme measurements give only an inclusive size concept, it may be worth while to add that the sporangia most commonly measure 25 to 30 u by 23 to 27 u (cf. Plate XXX, G). This species, as far as the writer is aware, has been reported hitherto only from Ecuador.

On *Psoralea Mutisii* H. B. K.

Cundinamarca: Ravine between Cerro Monserrate and Guadalupe, above Bogotá, No. *604*, June 25, 1929.

*8. **Synchytrium Phaseoli** Weston sp. nov.

The swollen galls in leaves and stems open like irregular craters in the fashion, similar to the aecia of certain rusts, which characterizes the subgenus Woroninella of Synchytrium. The sporangia are angular, polygonal to polyhedral, with flattened faces of contact when first cleaved out in the sorus (Plate XXX, F.), when free becoming rounded (Plate XXX, E.), swelling slightly, ranging in size from 16–22 u x 14–20 u, most frequently 18–20 x 15–17 u, with a distinctly golden color en masse and content marked with distinct refractive granules, (Plate XXX, E, F.).

This form is very distinct from the preceding in the smaller size of its rounded polygonal sporangia which may range from 16–22 u x 14–20 u, but are usually 18–20 u x 15–17 u. They thus mark this species as distinct from those others in the subgenus *Woroninella* which occur in tropical regions, as most of these have a diameter ranging from 25–30 u. In size they are somewhat nearer to those

of *Synchytrium aecidioides* which, usually ranging from 14–16 u in diameter, are the smallest of any in this subgenus.

Gäumann's (**9**) infection experiments, carried out in the East Indies in 1920–21 with related species, demonstrated that certain Synchytria (subgenus Woroninella) are specialized and restricted in host range at least to the genus of host. He concluded that because of this specialization certain scantily described forms for which structural distinctions had not yet been given should be recognized as distinct species on the basis of the genus of host on which they occur. The writer considers Gäumann's work conclusive and regards specialization of parasitism as additional grounds for separating this structurally distinct species on Phaseolus. The host *Phaseolus vestitus* Hook (with *Phaseolus atropurpureus* B. C. from which it is separated with difficulty) grows wild in a range from Salvador through southern Colombia and is a well-defined entity not to be confused with *Amphicarpa*, the host of the closely related *Synchytrium aecidioides*.

The species therefore is described as new and is named for the distinctive genus of host on which it occurs.

Intermingled with sori of *Uromyces appendiculatus*.

On leaves, petioles and stems of *Phaseolus vestitus* Hook.

El Valle: Along ravines at Finca Las Cañas, S. of Jamundi, No. *280 b*, May 15, 1929 (type).

Order II.—**PERONOSPORALES**.

Family 1—Pythiaceae.

9. Pythium DeBaryanum Hesse.

The report of this fungus is based on studies made by Mr. J. A. B. Nolla, who not only found and determined this common fungus, causing considerable damage ("damping-off") of tobacco seedbeds, but succeeded in obtaining it in pure cultures.

On seedlings of *Nicotiana tabacum* L.

El Valle: With no specific number in the collections, but frequently observed in tobacco seedbeds in the Cauca Valley during May, June and July, 1929 by J. A. B. Nolla.

10. Phytophtora Nicotianae Van Breda de Haan., Med. Lands Plant. Batavia **15**: 58. 1896.

This report is also based on Mr. J. A. B. Nolla's studies on the tobacco diseases in the Cauca Valley. It was found attacking seedlings in the seedbeds, causing "damping-off" and leaf spots in the tender leaves. A few diseased tobacco plants sent to Mr. Nolla,

from the Department of Cauca, showed the characteristic symptoms of "black shank". Mr. Nolla writes:

"This form of *Phythophthora Nicotiana* from Colombia has been compared critically with that from Porto Rico and differs from the latter only in having slightly smaller sporangia. A few oospores were found in old oatmeal agar cultures."

On seedlings and field plants of *Nicotiana tabacum* L.

El Valle: With no specific number, but kept in pure cultures at the Insular Experiment Station by Mr. J. A. B. Nolla.

11. Phytophtora infestans (Mont.) DeBary, Jour. Roy. Agr. Soc. England II, **12**: 240. 1876.

Botrytis infestans Mont., Mem. Inst. Fr. **1845**: 313. 1845.

Chardon notes that "The potato blight, which is known under the name of 'gota' causes a great deal of damage, especially in the Sabana de Bogotá, where it seems to be the limiting factor in potato growing. In spite of this heavy loss, no attempt is made to control the disease by spraying with fungicides."

On *Solanum tuberosum* L.

El Valle: Gardens at La Cumbre, Cordillera Occidental, No. *518*, June 12, 1929.

Cundinamarca: La Picota Experimental Farm, S. of Bogotá, No. *621*, June 30, 1929.

On *Lycopersicum esculentum* Mill.

El Valle: Gardens at La Cumbre, Cordillera Occidental, No. *519*, June 12, 1929.

Family 2.—Albuginaceae.

12. Albugo Bliti (Bivon.) Kuntze, Rev. Gen. Pl. **2**: 658. 1891.

Uredo Bliti Biv., Stirp Rar. Sicilia **3**: 11. 1815.

Caeoma Amaranthi Schwein, Trans. Am. Phil. Soc. **114**: 292. 1832

Cystopus Bliti De Bary, Ann. Sci. Nat. IV, **20**: 131. 1863.

Cystopus Amaranthi Berk., Grevillea **3**: 58. 1874.

Cystopus Amaranthacearum Zalew., Bot. Cent. **15**: 223. 1883.

Cystopus Cyathulæ Winter Roum., Rev. Myc. **11**: 66. 1889.

This species has been reported previously by Chardon (**4**) on *Amaranthus gracilis* (No. *97* above). Even though oospores are lacking it seems justifiable to refer the specimens on *Iresine* to this species as the conidial stage agrees with that on Amaranthus. Moreover, although *Iresine* is not listed as a host by Wilson (**43**) in his Host Index, it is one of the Amaranthaceae and this species has already

been reported by Sydow (**31**) on *Iresine* sp. near Medellín and on the road from Medellín to Bello in Colombia, and by Stevens (**28**) on *Iresine acicularis* from Costa Rica. Examination of Sydow's specimen (No. *153*) in the Farlow Herbarium shows convincing agreement. It is of interest that all of these specimens on Iresine are of the conidial stage only.

On leaves of *Amaranthus gracilis* Desl.

ANTIOQUIA: Fredonia, No. *97*, May 25, 1926.

EL VALLE: Near La Cumbre, Cordillera Occidental, No. *513*, June 12, 1929.

On leaves of *Amaranthus spinosus* L.

EL VALLE: Hacienda El Hatico, between Cerrito and Palmira, No. *349*, May 23, 1929.

On leaves of *Iresine celosia* L.

EL VALLE: Near Toro, No. *534*, June 12, 1929.

13. ALBUGO CANDIDA (Pers.) Kuntze, Rev. Gen. Pl. **2**: 658. 1891.

Aecidium candidum Pers. in Gmelin Syst. Nat. **22**: 1473. 1791.

Uredo candida Pers. Syn. Meth. Fung. 223. 1801.

Uredo Cheiranthi Pers. Syn. Meth. Fung. 224. 1801.

Cystopus candidus Lev. Berk. Jour. Hort. Soc. Lond. **3**: 271. 1848

Previously reported from Cundinamarca by Sydow (**31**) on this host and on *Nasturtium officinale* R. Brown.

On stems and leaves of *Capsella Bursa-pastoris* (L.) Med.

CUNDINAMARCA: Near hotel at Salto de Tequendama, No. *637*, July 6, 1929.

14. ALBUGO IPOMOEAE-PANDURANAE (Schwein) Swing., Jour. Myc. **7**: 112. 1891.

Aecidium Ipomoeæ-panduranæ Schwein. Schr. Natur. Ges. Leipzig **1**: 69. 1822.

Cystopus Ipomoeæ-panduranæ Stev. & Swing. Trans. Kan. Acad. Sci. **11**: 67. 1889.

Previously reported from Antioquia on *Ipomoea caloneura* Meissner by Sydow (**31**).

Even without any oospores and without precise specific identification of the host, which with this scanty material of leaves only is impossible, the determination of this species seems justifiable. The hosts in both numbers were wild Ipomoeas, hence the fungus could not be *A. minor* which Ciferri (**6**) has found limited to the cultivated sweet potato, neither, as the collections were made in the Cauca

Valley far inland, could it be *A. Ipomoeæ pes-capræ* which he found limited to the goats-foot Ipomoea of the sea shore. Further cross-inoculation experiments to determine the limitation of host range in the Albugos on various Ipomoeas in the tropics is much to be desired.

On leaves of Ipomoea sp. (possibly *I. rubra*).

El Valle: Near Buenaventura No. *211*, May 8, 1929; near Santa Ana, No. *343*, May 23, 1929; Hacienda Riopaila, S. of Zarzal, No *402*, May 23, 1929.

*15. Albugo minor (Speg.) Cif., Nuo. Gior. Bot. Ital. n. s. **35**: 132. 1928.

Cystopus convolvulacearum var. *minor* Speg. Ann. Soc. Ci. Argent. **17**: 128. 1884.

Albugo Ipomoeæ-panduranæ (Schwein) Swing. Jour. Mycol. **7**: 112. 1891. (in part)

In spite of the fact that Schweizer (**21**) has shown that moisture and the nature of the host plant can influence the morphological characters of such a related parasite as *Bremia lactucæ*, and in spite of the fact that further cross-inoculation studies and critical comparisons of Albugos on Ipomoea and other Convolvulaceæ are needed to put the classification on a sound basis, still the differentiation by Ciferri (**6**) of *A. minor* on sweet potato and *A. Ipomoeæ pes-capræ* on *Ipomoea pes-capræ* on the basis of host limitation and of size differences in the oospores seems worthy of acceptance. This specimen, agreeing in conidial characters with the description of Ciferri is therefore referred to his species even though no oospores are present.

On leaves of *Ipomoea batatas* (L.) Lam.

El Valle: Finca "Rincón" along river Pance, south of Cali, No. *255*, May 14, 1929.

16. Albugo Portulacae (D. C.) Kuntze, Rev. Gen. Pl. **2**: 658. 1891.

Uredo Portulacae D. C. Fl. Fr. **6**: 88. 1815.

Previously reported by Sydow (**31**) on this same host from Bolívar. The conidiophores of No. *229* are somewhat more elongate than is customary in material of the species. Otherwise the agreement is very close in the conidial phase, all that is present in both specimens.

On leaves and stems of *Portulaca oleracea* L.

El Valle: Along road from Cali to Palmira, No. *229*, May 11, 1929; Hacienda Riopaila, and south of Zarzal, No. *401*, May 31, 1929.

17. Albugo Tragopogonis (D. C.) S. F. Gray, Nat. Arr. Brit. Pl. 1: 540. 1821.

Uredo candida var. *Tragopogoni*. Piers. Syn. Meth. Fung. 233. 1801.

Cystopus brasiliensis Speg. Bol. Acad. Ci. Cordoba **11**: 481. 1889.

Previously reported (as *Cystopus brasiliensis*) by Sydow (**31**) from Antioquia on *Ageratum conyzoides*, six collections, and on *Eupatorium conyzoides* Vahl. one collection.

Wilson (**41**) after examining specimens on *Ageratum conyzoides* from Ecuador and from Brazil concluded that *Cystopus brasiliensis* of Spegazzini is not distinct from *A. tragopogonis*. The writer, after comparing these new collections from Colombia (of which No. *411*) fortunately contains abundant oospores, and material in the Farlow Herbarium of *A. brasiliensis* on *Ageratum conyzoides* and on *Alomia microcarpa* (Benth.) Rob. from Sydow, with specimens of *A. tragopogonis* is convinced that Wilson is correct and hence relegates these numbers to the latter species.

On leaves of *Ageratum conyzoides* L.

El Valle: Near College of Nuestra Señora de los Andes above Cali. No. *441*, June 9, 1929.

On leaves of *Jaegeria hirta* Less.

El Valle: Near College of Nuestra Señora de los Andes above Cali, No. *451*, June 9, 1929.

On leaves of *Ageratum conyzoides* L.

Antioquia: Granizales, No. *273* (coll. R. A. Toro), September 11, 1927.

*18. **Albugo Chardoni** Weston sp. nov.

Sori on the leaves prominent, white, conspicuous, abundant rounded or slightly irregular in outline (Plate XXXI, B.), frequently crowded at the base or tips of leaves and following veins in irregular groups (Plate XXXI, A.). Conidiophores when young cylindrical to tapering about 45 x 14 u (Plate XXXI, C, D.), later after continued sporulation, elongate, fusiform or tapering, 60–75 u x 12–14 u (Plate XXXI, F, I.), the thickened basal wall hyaline. Conidia dissimilar, the terminal (Plate XXXI, J.) larger, usually 18–21 x 15–18 u, broader, more rotund, the peculiar wall thickening less pronounced, hyaline, the latter conidia (Plate XXXI, K.) hyaline, narrower, and more elongate, the distal end domed, the sides tapering to narrower usually truncate base, the size smaller ranging from 14–20 x 13–18 u but usually 16–19 x 14–17 u, the wall characteristically thickened across the base and up the sides but thin throughout the domed, distal portion. Oospores not seen. Type in Fungi of Colombia in the Cornell Herbarium and duplicates in the Farlow Herbarium at Harvard.

The writer hesitates to present a species as new on the basis of conidial material solely, but in this case the conidial pecularities seem sufficiently marked to warrant establishing this as distinct. The older conidiophores (Plate XXXI, F, I.) with their elongate and relatively slender shape, are easily separated from most species, being approached only by those of *Albugo Froelichia* of Wilson (**41**). When producing their first conidia the conidiophores are shorter, perhaps 45 u (Plate XXXI, C.), and there are indications (Plate XXXI, D, I.) that as sporulation continues they proliferate until very elongate. Clumps of noticeably long conidiophores frequently may be seen in the center of developing pustules.

Moreover, the characteristic thickening of the wall of the conidia is a distinctive feature. This thickening seems to differentiate a third conidial type in Albugo in addition to the two usually emphasized, one with the conidia rotund, approximately spherical, the wall relatively thin and of equal thickness throughout, as in *Albugo candida;* the other type with from usually more cylindric and wall characteristically distinguished by a median angular thickening as in *A. Tragopogonis.* In this third type, the conidia are somewhat cylindric but with the distal end domed, the sides tapering to a narrower truncate base and the wall thick (up to 2.5 u) across this base and up the sides but thin, (usually less than 1 u) throughout the domed summit. As far as the writer can determine, this type of thickening has been reported in but one other species, namely *Albugo tillaea* which Lagerheim (**19**) described on *Tillaea rubescens* from the outlying streets of Quito, Ecuador. Lagerheim's description that "La membrane de la partie inférieure des conidies est plus épaisse que celle du sommet," and his figure 3A of Plate 11 were the first to emphasize this feature and leave little doubt that it is the same type as that of this new species on Cleome from Colombia. Yet there is no possibility that the two are identical. The hosts are quite unrelated, *Tillaea rubescens* being a member of the Crassulaceæ and *Cleome anomala* one of the Capparidaceæ, and the conidia on *A. tillaceæ*, although of the same shape and with the same wall thickening of those in *A. Chardoni* are much larger, being from 20 to 24 u long by 20 to 21 u broad.

The host species, a member of the Capparidaceæ, is an addition to the list of hosts for species of the genus Albugo. The only other Albugo recorded on members of this genus is *Albugo candida*, which in the past has been reported on *Capparis rupestris*, *C. spinosa*, and on *Cleome graveolens* in the family of the Capparidaceæ. The present species, however, is quite unlike *Albugo candida* in the extreme

length and slender, tapering form of its older conidiophores, and in the characteristic shape and distinctive wall thickening of its conidia. It is much to be regretted that no oospore material is available, but the species in its conidial phase seems none the less to be a particularly distinctive one.

This species, therefore, is tentatively described as new and is named after Carlos E. Chardon, who not only collected it but also appreciated its distinctive characters and tentatively suggested that it might prove to be a new species.

On leaves of *Cleome anomala* H. B. K.

CUNDINAMARCA: In wet meadows above the Salto de Tequendama, No. *668*, July 6, 1929 (type).

Family 3.—PERONOSPORACEAE.

19. PLASMOPARA VITICOLA (B. & C.) Ber. & DeT., Syll. Fung. **7**: 239. 1888.

Botrytis viticola Berk. & Curt., Jour. Hort. Soc. London **6**: 289. 1851.

Peronospora viticola DeBary., Ann. Sci. Nat. IV **20**: 124. 1863.

Rhysotheca viticola G. W. Wilson., Bull. Torrey Bot. Club **34**: 407. 1907.

This most frequent parasite of the grape, causing the well-known grape mildew and co-extensive with its host throughout the world, is apparently common, although not devastatingly destructive in this region.

On leaves of *Vitis vinifera* L.

EL VALLE: Finca Piedra Grande, south of Cali, No. *240*, May 14, 1929; near Palmira, No. *533*, June 8, 1929.

CUNDINAMARCA: In manager's garden, Hacienda San Antonio, No. *694*, July 11–12, 1929.

20. PERONOPLASMOPARA CUBENSIS (Berl.) Clint. Conn. Agr. Exp. Sta. Rep. **28**: 335. 1905.

Peronospora cubensis Berk. & Curt. Jour. Linn. Soc. **10**: 363. 1818.

Plasmopara cubensis Humphrey, Rep. Mass. State Agr. Exp. Sta. **8**: 212. 1891.

Pseudoperonospora Cubensis (B. & C.) Rostow. Ann. Inst. Agron. Moscow **9**: 47. 1903. Flora **92**: 422. 1903.

Previously reported from Colombia by Chardon (**4**); of almost world-wide distribution on various members of the Cucurbitaceae.

On leaves of *Cucurbita Pepo*. L.

EL VALLE: Finca Piedra Grande, S. of Cali. No. *248*, May 14, 1929.

ORDER IV.—**MUCORALES.**

Family 1—MUCORACEAE.

*21. CIRCINELLA SPINOSA van Tiegh. & Moun., Ann. Sci. Nat. V. **17**: 305. 1873.

Found associated with lesions on *Theobroma Cacao* produced by the *Monilia*, probably secondary. Determined and cultivated by Miss Marjorie Swift, of the N. Y. Botanical Garden.

On *Theobroma Cacao* L.

TOLIMA: From Espinal, sent by Vittorio Sacco to R. A. Toro, on March, 1930. (Culture *50*, by M. Swift, N. Y. Bot. Garden.)

Family 2—CHOANOPHORACEAE.

*22. CUNNINGHAMELLA ELEGANS Lender. Beitr. Krypt. Schw. **3**: 159. 1908.

Found in same condition and association as above.

On *Theobroma Cacao* L.

TOLIMA: From Espinal, sent by Vittorio Sacco to R. A. Toro, on March, 1930. (Culture *51*, by M. Swift, N. Y. Bot. Garden.)

ASCOMYCETES

ORDER I.—**EXOASCALES.**

Family 1—EXOASCACEAE

23. TAPHRINA DEFORMANS (Berk.) Tul., Ann. Sci. Nat: 128. 1866.

Exoascus deformans (Berk.) Fckl.

On *Prunus persica* S. & Z.

This fungus was first reported from Colombia by Toro (**39**) and it is one of the serious troubles attacking peaches in this region.

CUNDINAMARCA: La Picota Experimental Farm, S. of Bogotá, No. *633*, June 30, 1929.

ORDER II.—**PEZIZALES.**

FRED J. SEAVER *

*24. ASCOBOLUS MAGNIFICUS Dodge, Mycologia **4**: 218. 1912.

This is the first report of this species from continental South America. It is one of the few common discomycetes in Porto Rico.

On cow dung.

EL VALLE: Finca Las Cañas, near railroad track, S. of Jamundi, No. *266*, May 15, 1929; near San Pedro, No. *407*, June 4, 1929.

* Contribution from the New York Botanical Garden.

*25. ASCOPHANUS CARNEUS (Pers.) Boud., Ann. Sci. Nat. V. **10**: 250. 1869.

On dung.

EL VALLE: Vicinity of Cali, No. *729*, May 18, 1929.

*26. PATELLA CUBENSIS (B. &C.) Seaver, N. Amer. Cup-Fungi, 160. 1928.

On coffee pulp and dead wood.

ANTIOQUIA: Medellín, No. *174* (coll. R. A. Toro), July 24, 1927.
EL VALLE: In bamboo forest near San Pedro, N. of Buga, No. *414*, June 4, 1929.

*27. ORBILIA LOCISIMIARUM P. Henn. Hedwigia **41**: 19. 1902.

On leaf sheaths of *Guadua latifolia* Kunth.

CALDAS: Along Quindio River, near Armenia, No. *720*, July 14, 1929.

*28. **Belonopsis Ingae** Seaver sp. nov.

Apothecia sessile, gregarious and often confluent, pale yellow and semitranslucent reaching a diameter of .5 mm.; asci clavate, short. 48–20 x 4–5 u; spores slender, straight or slightly curved, 8–10 u; paraphyses very slender with globose apices about 3 u in diameter.

On dead pod of *Inga* sp.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *506*, June 11, 1929 (type).

*29. ERINELLA SIMILIS Bres., Hedwigia **35**: 296. 1896.

On dead wood.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *505*, June 11, 1929.

*30. ERINELLA LONGISPORA (Karst.) Saac. Syll. Fung. **8**: 507. 1889.
Lachnum longisporum Karst. Hedwigia **28**: 191. 1889.

On dead log.

ANTIOQUIA: Tranvía de Oriente, No. *56*, May 18, 1926.

31. CALLORIA QUITENSIS Pat., Bull. Soc. Myc. Fr. **8**: 126. 1892.

On *Kelbunium hypocarpium* (L.) Hemsley.

A beautiful species previously collected by Mayor and reported by Sydow (**31**) and common in the middle Andean region.

ANTIOQUIA: Loreto, Nos. *173* and *230* (coll. R. A. Toro), May

10 and 21, 1927, respectively; Medellín, No. *340* (R. A. Toro), Jan. 20, 1928.

El Valle: Hacienda Bitaco, Cordillera Occidental, No. *499*, June 11, 1929.

Order III.—PHACIDIALES.

32. Tryblidium rufulum (Spreng.) Ellis & Ev., N. Am. Pyrenom. 690. 1892.

On dead wood.

El Valle: Exp. Sta. at Palmira, No. *742* (Coll. L. A. Serrano) no date.

Order IV.—HEMISPHAERIALES.

(Rafael A. Toro.)

This order was established by Theissen (**35**) to include those fungi with inverse radiate perithecia, which were formerly scattered among other orders of the Pyrenomycetes. Since the establishment of the order, much discussion has taken place as to its systematic position. In the latest monograph of the order by Theissen & Sydow (**37**), a step was made by the inclusion of the family Polystomellaceae, thus establishing a connection with the Dothideales. Spegazzini (**24**), although accepting the limitations of the order, expressed his doubts as to the constancy of the characters involved. Arnaud (**1**) makes a thorough study of some of the members of this order and presents a more fundamental classification based on the morphological characters of the fruiting bodies. He recognizes two orders within the group: the Microthyriales which is constituted by the majority of the elements included by Theissen & Sydow and which have an asterinoid, parasitic mode of life, while in the Hemisphaeriales are included the remaining genera which are probably at most saprophytic. Arnaud's classification lacks in ease of application, while that of Theissen and Sydow, based, as it is, wholly on spore septation and color, is of necessity too artificial.

According to the various authors who have worked with the order, the Hemisphaeriales are related to the Dothideales on the one hand and to the Perisporiales on the other. Gäumann (**10**) points out that the order is intermediate between the Pyrenomycetes and the Discomycetes, near the Phacidiales.

Since our present knowledge of the affinities and relationships of the order are still not clearly defined, we are considering the group as a separate one, adopting the classification of Theissen and Sydow.

Family 1.—STIGMATACEAE.

Coscinopeltella Chardon gen. nov.

Stromata subcuticular, black, radiate (?) crustaceous, convex, with the epidermis intact and clearly visible; locules round, simple or compound through coalescence; asci 8–spored, clavate; spores 1–celled, hyaline; paraphyses absent.

The fungus falls in the tribe Munkiellae, of the Stigmataceae according to the treatment of Theissen and Sydow (l. c.). The general macroscopic characters of the fungus, together with the shape of the asci are highly suggestive of the Stigmataceae, especially the genus *Coscinopeltis* Speg. The excellent illustration published by Spegazzini (**24**, Fig. 22) of the type species of the genus, *C. argentinensis* indicates a very close morphological similarity with our Colombian species.

Spegazzini's diagnosis of the genus is:

"Stromata orbicularia dimidiato-scutiformia, superne laxe punctulata, inferne reticulato-loculigera; asci octospori; sporae 1–loculares, breves hyalinae."

No mention is made in the generic diagnosis of the presence or absence of paraphyses, although its type species, *C. argentinensis* shows them clearly. Theissen and Sydow's (**36**) diagnosis of the genus, however, amends the original diagnosis by adding "asci paraphysati." Since our Colombian species has no paraphyses, a new genus, *Coscinopeltella,* is needed to take care of the species of *Coscinopeltis,* lacking paraphyses.

Type species: *Coscinopeltella Montalvoae* sp. nov.

*33. **Coscinopeltella Montalvoae** Chardon sp. nov.

Spots epiphyllous, round, 1.5–3 mm.in diameter, black, very conspicous, made up of a larger number (10–50) of minute, black, shiny stromata, 300–100 u in diameter, convex and ostiolate; stromata black, radiate (?), distinctly situated between the cuticle and the epidermis; locule single, lenticular, covered on the roof by the black stroma, seated on a hypostroms at the base, 300–400 u in diameter; asci 8–spored, with the spores inordinate or else biseriate, broad-clavate, with the ascus well thickened to 3–7 u at the end; spores long ellipsoidal, with the upper end obtuse, the lower acute, 1–celled, hyaline, with granular contents, 18–20 x 8–9 u; paraphyses absent.

Named in honor of Dr. José A. Montalvo, former Minister of Industries in testimony of our appreciation for his many courtesies during our visit to Bogotá.

On *Miconia squamulosa* (Sw.) Triana.

CUNDINAMARCA: Ravine between Cerro Monserrate and Guadalupe; above Bogotá, No. *594*, June 25, 1929 (type).

Family 2.—POLYSTOMELLACEAE.

Placoasterina Toro gen. nov.

Mycelium present, hypophodiate, stroma dothideaceous, superficial, centrally fastened to the hypostroma, loculi oval, single or few in each perithecia; asci 8-spored; spores 2-celed, brown; paraphyses filiform.

The genus *Placoasterina* differs from *Armatella* Th. & Syd. by having perithecia with more than one locule and brown spores; from *Placoasterella* Sacc. by having hyphopodiate mycelium; from *Asterina* Lev. in that typical inverse-radiate thyriothecia are absent and from *Prilleuxina* by having a definite hypostroma with distinct loculi. The genus belongs to the Polystomlaleae of the classification of Theissen and Sydow (l. c.) between *Armatella* Th. & Syd. and *Placoasterella* Sacc.

Type species: *Plascoasterina antioquensis* sp. nov.

*34. **Placoasterina antioquensis** Toro sp. nov.

Spots sometimes discolored; epiphyllous, borderingthe stromata with a reddish band about 1 mm. wide; stromata circular, black at the tip, radiate at the base, superficial, 1-2 mm. in diameter; hypostroma epidermal; perithecia with one or few definite, roundish loculi, 125–155 u in diameter, covered with a layer 20–30 u thick, astomous or longitudinally cracked; mycellium hypopodiate, brown, superficial, thick-walled, nearly straight, sparsely branched, septate, 6–8 u wide; hyphopodia mostly unilateral, alternate, few, 1-celled, roundish, 8–12 u in diameter; asci elliptic, sometimes hemispherical, sessile 8-spored, 53–56 x 30–34 u; spores inordinate, ellipsoid, hyaline at first, light brown with age, 2-celled, thick-walled, 23–30 x 10–13 u; cells subequal, sometimes separating; paraphyses filiform, hyaline. (Plate XXXII, C, D).

On leaves of *Miconia desmantha* Benth.

ANTIOQUIA: Near Itagüí; No. *23*, April 29, 1926 (type).

Family 3.—MICROTHYRIACEAE.

*35. ASTERINA BELLUCIAE P. Henn., Hedwigia **43**: 374. 1904.

Asterina Racemosae Ryan, Mycologia **16**: 182. 1924.

Asterina miconicola Ryan, l. c.

A comparison of the Colombian and Porto Rican materials shows a very close similarity with the description of the species. Measure-

ments of a great number of thyriothecia and spores of specimens of the species involved make it impossible to separate them on the basis of measurements of these structures. The Porto Rican material has larger spores than those given by Ryan. They average 20–28 x 10–12 u. (Plate XXXIII, D).

On *Miconia aeruginosa* Naud.

ANTIOQUIA: Armenia, No. *214* (coll. R. A. Toro), April 18, 1927.

*36. ASTERINA DIPLOPODA Sydow, Ann. Myc. **25**: 56. 1927.

The species was previously known from Costa Rica and Venezuela. The fungus on the Colombian material is so abundant in the upper surface of the leaves and petioles that it completely covers the green or yellowish color of these structures.

On *Solanum* sp.

CUNDINAMARCA: Along road beyond Salto de Tequendama, No. *678*, July 7, 1929.

37. ASTERINA HYPOPHYLLA (Schw.) Berk., Theisse Ann. Myc. **10**: 165. 1912.

Dothidea hypophylla Schw. in herb.

This species was reported as *A. Melastomatis* Lev. by Earle (**8**).

On a Melastomaceae.

MAGDALENA: Near Santa Marta, C. F. Baker No. *90*, Nov. 19, 1898.

*38. ASTERINA MEGALOSPORA B. & C., Jour. Linn. Soc. Bot. **10**: 363. 1898.

Asterina confertissima Speg., Bol. Acad. Nac. Cienc. Córdoba **28**: 572. 1919.

Asterina passifloricola Ryan, Mycologia **16**: 183. 1924.

Asterina Tacsoniae Pat. var. *Passiflorae* Ryan, l. c.

On *Passiflora mollissima* (H.B.K.) Bailey.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *653*, July 6, 1929.

*39. ASTERINA MELASTOMATACEAE (P. Henn.) Th., Ann. Myc. **10**: 165. 1912. (Plate XXXII, B).

Seynesia Melastomataceae P. Henn. Hedwigia **41**: 300. 1902.

On *Miconia* sp.

ANTIOQUIA: Angelópolis, No. *222* (coll. R. A. Toro), July 27, 1927.

*40. ASTERINA MELASTOMATIS (Lev.) Mont. in herb.

Asterina Melastomatis Lev. Ann. Sci. Nat. **33**: 59. 1845.

This species was set as the type of the genus, but the original

material on which the description was based has been lost. In view of this fact Theissen (en San Juan) selected as the type a collection from Montagne's herbarium (Crypt. Guayn. No. *580*) collected by Leprieur, and accepted Montagne's concept of the species, making a re-description of it. Since from Leveille's description it is not possible to determine the exact limitations of the species, we deem more acceptable the amended description of Theissen based on Montagne's material.

On *Miconia* sp.

ANTIOQUIA: Vicinity of Medellín, No. *321* (coll. R. A. Toro), Nov. 8, 1927.

*41. ASTERINA MICONIAE Theissen, Ann. Myc. **11**: 440. 1913.
Not *A. Miconiae* Ryan, Mycologia **16**: 181. 1924.
On *Clidemia hirta* (L) D. Don.

ANTIOQUIA: Angelópolis, No. *223* (coll. R. A. Toro) July 27, 1927.

*42. ASTERINA TERTIA Rac., Theiss. in Abh. K. K. Zool-Bot. Ges. in Wien **73**: 103. 1913.

The original material was collected in Java. The Colombian specimens differ in the scattered nature of the colonies, but otherwise they agree with the description.

On *Ruellia* sp.

ANTIOQUIA: Angelópolis, No. *208* (coll. R. A. Toro), July 31, 1927.

*43. ASTERINA VAGANS Speg., Anal. Soc. Cient. Argent. **26**: 48. 1888.
On *Cordia ferruginea* R. & S.

ANTIOQUIA: Santiago, No. *287* (coll. R. A. Toro), Nov. 10, 1927.

*44. **Asterina Uribei** Toro sp. nov.

Spots epiphyllous, round, 4–8 mm. in diameter, dark colored; mycelium radiating; frequently undulate, branches alternate or unilateral, fuscous, septate, cells 40–60 x 6 u; hyphopodia scattered, alternate or unilateral, sessile, somewhat rounded,entire, 5–6 u high, 7–8 u long; thyriothecia scattered, never confluent, flattened-hemispherical, 160–200 u in diameter, composed of radiating hyphae about 3.5 u thick, fimbriate, center pseudo-ostiolate, dehiscence by two or three irregular slits; asci broadly elliptical, thick walled, sessile, 65–68 x 24–27 u; 8–spored; spores conglobate, 1 septate, smooth, hyaline when young, light brown with age, slightly constricted at septum, 24–27 x 10–13 u, each cell sub-spherical, upper cell broader (Plate XXXIII, B).

Differs from other species described on the Melastomataceae by

its characteristic peculiarity of giving a reddish coloration to the host tissue underneath the mycelium.

Named in honor of Dr. César Uribe, Colombian parasitologist and scientist.

On *Miconia Toroi* Gleason.

ANTIOQUIA: Angelópolis, No. *225* (coll. R. A. Toro), July 27, 1927 (type).

The number of species of *Asterina* on members of the Melastomaceae is now over 25. Most of these present so many characters in common that a thorough revision of the group is necessary in order to clearly define their characters. So far none of the authors have made mention of species which cause discolorations of the host tissue.

KEY TO KNOWN SPECIES OF ASTERINA ON MELASTOMACEAE IN COLOMBIA:

I. Thyriothecia with a disk of straight, mostly free, toothed hyphae.
  A—Hyphopodia lobed.
    a. Small, 6–8 u long. — *A. Melastomatis*
    b. Large, 12–18 u long. — *A. hypophylla.*
II. Thyriothecia without disk.
  A—Hyphopodia globose or cylindrical, lobed.
    a. Thyriothecia less than 170 u in diameter — *A. Belluciae*
    b. Thyriothecia over 170 u in diameter — *A. Uribei*
  B—Hyphopodia not lobed, slightly wavy.
    a. Hyphopodia 7–10 x 4 u — *A. Melastomatacea*
    b. Hyphopodia 6–7 x 5 u — *A. Miconiae*

*45. **Asterinella antioquensis** Toro sp. nov.

Colonies epiphyllous, roundish, numerous, frequently anastomosing to form large, black patches; center of subiculum forming a necrotic lesion on the host tissue, light colored, somewhat raised; thyriothecia black, thickly scattered on the subiculum, non ostiolate, radiate, dehiscence by disintegration of its cells, 150–200 u in diameter; mycelium brown, wavy, thick-walled, anastomosing; 8 u thick, hyphopodia none; asci broadly ovate, thick-walled, sessile, the tip truncated, the base rounded, 47–52 x 27–31 u; sp. p. ovate, 31–40 u long; spores inordinate, unequally two-septate, slightly constricted, 17–21 x 7–10 u, hyaline at first, fuscous at maturity, lower cell spherical, broader, upper cell ellipsoidal; paraphyses none. (Plate XXXIII, C).

Differs from *A. melastomacearum* Ryan in having larger thyriothecia and smaller asci and spores.

On *Miconia ciliata* (L. C. Rich) DC.

ANTIOQUIA: Angelópolis, No. *246* (coll. R. A. Toro), July 27, 1927 (type).

*46. Calothyriolum apiaphynum Speg., Bol. Acad. Nac. Ci. Córdoba **23**: 141. 1919.

On *Persea Persea* (L) Cockerell.

El Valle: Andalucía, No. *529*, June 7, 1929.
Caldas: Armenia, No. *724*, July 14, 1929.

*47. Calothyrium jodascum Speg., Bol. Acad. Nac. Ci. Córdoba **23**: 139. 1919.

On *Aniba perutilis* Hemsl.

Antioquia: Medellín, Phan. Herb. N. Y. Bot. Garden, collected by Gordon, *No Number*, Nov. 1893.

*48. **Peltella insignis** Toro sp. nov.

Spots amphigenous, light colored, somewhat raised, mostly elliptical, 20–40 x 10–15 mm.; thyriothecia amphigena, mostly epiphylla, closely aggregate, brittle, confluent, occurring on the indentations of the leaf veins, black, dimidate, ostiolate, composed of radiating cells 3 u thick, 80-100 u high, 100–120 u diameter; ostiolum round, distinct, 8–10 u in diameter; superficial mycelium none; asci oblong: thick-walled, sessile, 8-spored, 52–59 x 13–15 u; spores biseriate, one-celled, hyaline, obovate, 10–12 x 5–6 u; paraphyses none. (Plate XXXII, A).

On *Bromelia Pinguin* L.

Antioquia: Angelópolis, No. *185* (coll. R. A. Toro), July 27, 1927 (tpye).

Order V.—PERISPORIALES.

(Rafael A. Toro)

This order is considered in the sense of Theissen & Sydow (**37**), except that the genus *Meliola* and its recently established allied genera *Irene* and *Irenina* are separated as a class, the *Meliolineae*. The researches of Arnaud (**1**) have shown that the characters of the perithecia in the Meliolineae tends toward the dothideaceous type and therefore do not correspond to the "fascicle bundle of asci" typical of the Perisporiales.

Family 1.—Erysiphaceae

*49. Erysiphe Polygoni DC. Fl. Fr. **2**: 273. 1805.

On *Cassia occidentalis* L.

El Valle: Garden at San Fernando, near Cali, No. *304*, May 18, 1929, (conidial stage).

50. SPHAEROTHECA PANNOSA (Wallr.) Lev. Ann. Sci. Nat. **15**: 138. 1851.

Causing a common mildew on the roses but found only in its imperfect stage. Previously reported by Sydow (**31**) based on collections made by Mayor, as *Oidium leucoconium* Desm.

On *Rosa* sp. (cult.)

EL VALLE: Garden at La Cumbre, Cordillera Occidental No. *516*, June 12, 1929; Garden at Artillery Barracks, Buga, No. *525*, June 5, 1929; (det. C. Wescott).

CUNDINAMARCA: La Picota Exp. Farm, S. of Bogotá, No. *620*, June 30, 1929. (det. C. Wescott).

Family 2.—PERISPORIACEAE

*51. DIMERIELLA CORDIAE (P. Henn.) Theiss., Beih. Bot. Cent **29**²: 67. 1912.

Dimerosporium Cordiae P. Henn. Hedwigia **48**: 4. 1908.

Dimerium Stevensii Garman, Mycologia **7**: 337. 1915.

On *Cordia lanceolata* (Desv.) H. B. K.

EL VALLE: Thickets near San Pedro, N. of Buga, No. *426*, June 4, 1929.

On *Cordia ferruginea* (Lam.) R. & S.

EL VALLE: Finca Las Cañas, South of Jamundi, No. *265*, May 15, 1929.

On *Cordia corymbosa* (L.) Don

EL VALLE: Thickets near San Pedro, North of Buga, No. *425*, June 4, 1929.

*52. DIMERINA EUTRICHA (Sacc. & Berl.) Theiss., Beih. Bot. Cent. **29**²: 65. 1912.

Dimerosporium eutrichum Sacc. & Berl., Rev. Myc. **7**: 156. 1885.

On *Irenina vilis* (Syd.) Stev. on *Valerianodes* sp.

ANTIOQUIA: Salgar No. *367* (R. A. Toro), April 15, 1927.

*53. **Phaeostigme Isazanum** Toro sp. nov.

Spots none; mycelium olivaceous, septate, branching at right angles to main hyphae, cells subequal, sometimes toruloid, 8–12 x 3 u; perithecia round, scattered, superficial, black, 80–100 u in diameter, dehiscence by disintegration of the cellular elements, sometimes ostiolate; asci fasciculate, sessile, ellipsoid, 22–27 x 8–10 u, 8–spored; spores biseriate, 2–celled, brown, not constricted at septum, 7–8 x 2–3 u; paraphyses filiform, hyaline. (Plate XXXII, E).

Named in honor of Dr. José M. Isaza, Director of the Agricultural Experiment Station of Medellín, Antioquia.

Parasitic on mycelium of *Asterinella antioquensis* Toro on *Miconia ciliata* (L. C. Rich.) DC.

ANTIOQUIA: Angelópolis, No. *246* (R. A. Toro), July 27, 1927 Type.

SECTION MELIOLINEAE

KEY TO GENERA REPRESENTED IN COLOMBIA:

Mycelium devoid of setae	
Perithecium with larviform appendages	*Irene*
Perithecium without larviform appendages.	*Irenina*
Mycelium with setae	*Meliola*

*54. IRENE CALOSTROMA (Desm.) v. Hohnel, Ann. Mycol. **61**: 213. 1928.

Sphaeria calostroma Desm., Bull. Soc. Bot. France **4**: 1011. 1857.
Chaetosphaeria calostroma (Desm.) Sacc., Syll. Fung. **2**: 95. 1883.
Meliola Puiggarii Speg., Bol. Acad. Nac. Ci. Córdoba **11**: 492. 1889.
Meliola manca Ellis & Mart., Am. Nat. **17**: 1284. 1883.
Meliola sanguinea Ellis & Everh., Journ. Myc. **2**: 42. 1886.
Meliola rubicola P. Henn., Hedwigia **43**: 140. 1904.
Meliola autummalis Sydow, Ann. Mycol. **2**: 169. 1904.
Meliola calostroma v. Hohnel, Ann. Mycol. **15**: 363. 1917.
Irene manca (E. & M.) Theiss. & Syd., Ann. Myc. **15**: 461. 1917.
Irene Puiggarii (Speg.) Doidge, Trans. Roy. Soc. South Africa **9**: 122. 1919.
Appendiculella calostroma (Desm.) Hohn., Sitz. K. Akad. Wiss. in Wein **128**: 556. 1919.

On *Rubus urticaefolius* Poir.

ANTIOQUIA: Angelópolis, No. *220* (R. A. Toro), July 27, 1927.
On *Rubus* sp.

CALDAS: Ravines near Armenia, No. *522*, June 19, 1929.

*55. IRENE SORORCULA (Speg.) Stev., Ann. Mycol. **25**: 423. 1927.

Meliola sororcula Speg., Bol. Acad. Nac. Ci. Córdoba **11**: 493. 1889.
Meliola compositarum Earle, Bull. N. Y. Bot. Garden **3**: 306. 1905.
Appendiculella compositarum (Earle) Toro, Mycol. **17**: 144. 1925.
Appendiculella compositarum portorricensis (Stev.) Seaver & Toro, Sci. Surv. Porto Rico **8**: 28. 1926.

Irene sororcula (Speg.) var. *portorricensis* (Stev.) Stev., Ann. Myc. **25**: 425. 1927.

The appendages in our specimen are few in number, usually 4–6, and 70–75 u long. The spores have an average length of 45 u and the whole colony corresponds to the Beelian formula 3201: 42.20.

Comparison of a number of specimens of this species from Porto Rico, Santo Domingo and Colombia show that the hyphopodia, and number and size of the appendages are very variable. On this account we are considering the varieties as identical with the species. (Plate XXXII, F).

On *Eupatorium inulaefolium* H. B. K.

CALDAS: Ravines near Armenia, No. *550*, June 19, 1929.

*56. IRENINA GLABRA (B. & C.) Stev., Ann. Mycol. **25**: 461. 1927.
Meliola glabra B. & C., Journ. Lim. Soc. London **10**: 392. 1869.
Irene glabra (B. & C.) Toro, Mycol. **17**: 139. 1925.
On *Randia* sp.

ANTIOQUIA: Medellín, No. *304* (R. A. Toro), Jan. 20, 1928.

*57. IRENINA OBESA (Speg.) Stev., Ann. Myc. **25**: 450. 1927.
Meliola obesa Speg,. Anal. Soc. Cient. Argentina **12**: 72. 1883.
Meliola obesula Speg., Rev. Argentina Hist. Nat. **1**: 27. 1891.
Irene obesa (Speg.) Theiss. & Sydow, Ann. Mycol. **15**: 461. 1917.
On *Zanthoxylon Fagara* (L.) Sarg.

EL VALLE: Near Santa Ana, between Cartago and Cauca river, No. *375*, May 29, 1929.

*58. **Irenina obtusa** Toro sp. nov.

Colonies amphigenous, small, round, black, rarely confluent, 1–2 mm. in diameter; mycelium wavy, septate, brown, branches alternate, cells 16–20 x 5 u; capitate hyphopodia alternate, pyriform, stock cell rectangular, 3 u high, head cell straight, round, about 7 u wide; mucronate hyphopodia rare; perithecia globose, black, rough at the base, 190–220 u in diameter; asci evanescent; spores 4-septate slightly constricted, thick walled, brown, 36–39 x 12–15 u, and cells obtuse. (Plate XXXIII, A).

Formula: 3101: 32.30.

The species differs from the others described in the Rubiaceae in the size of the spores. It resembles *I. penicilliformis* (Gaill.) Stev. in general appearance of the colonies, but differs from it in the perithecia and hyphopodia characters.

On *Tontanea canescens* (Willd.) Standley.

ANTIOQUIA: Angelópolis, No. *221* (R. A. Toro), July 27, 1927 (type).

*59. IRENINA VILIS (Syd.) Stev., Ann. Mycol. **25**: 468. 1927.

Meliola vilis Sydow, Leafl. Phyllippine Bot. **6**: 1926. 1913.

Irene vilis (Syd.) Syd. Ann. Mycol. **15**: 195. 1917.

To this species can be referred the specimens from Porto Rico determined by Stevens (**26**) as *Meliola glabroides* sp. nov. on *Stachytarpheta cayennensis*. The Porto Rican and Colombian specimens have mycelium somewhat bent and the perithecia are of larger diameter than the dimensions given for the Phillippine species. Both, however, correspond to the formula 3101. 32. 20.

On *Valerianodes cayennensis* (L. C. Rich) Kuntze.

ANTIOQUIA: Salgar, No. *367* (R. A. Toro), July 20, 1928.

On *Valerianodes mutabilis* (Jacq.) Kuntze.

TOLIMA: Ravines along Rd. near Ibagué, No. *556*, June 26, 1929.

*60. IRENINA WRIGHTII (B. & C.) Stev., Ann. Mycol. **25**: 450. 1927.

Meliola Wrightii B. & C. Journ. Linn. Soc. London **10**: 392. 1869.

On *Cupania* sp.

CUNDINAMARCA: Along Funza river, trail to Central San Antonio, No. *684*, July 11, 1929.

KEY TO SPECIES OF MELIOLA REPRESENTED IN COLOMBIA:

Spores 3 septate	
Capitate hyphopodia alternate	
Spores obtuse	*M. nidulans*
Spores 4 septate	
Mycelial setae dentate	
Capitate hyphopodia opposite	
Head cell globose	*M. bicornis*
Capitate hyphodia alternate	
Head cell cylindric	*M. Mangiferae*
Mycelial setae simple	
Ends acute or rarely bifid	
Spores acute	
Capitate hyphopodia alternate	*M. Stenotraphi*
Ends never bifid	
Spores obtuse	
Capitate hyphopodia alternate or opposite	*M. pithecolobicola*
Capitate hyphodia always alternate	*M. Rudolphiae*
Ends obtuse	
Capitate hyphopodia alternate	
Head cell pyriform	*M. Lantanae*
Head cell globose	*M. integriseta*
Head cell lobed	*M. Panici.*

*61. MELIOLA BICORNIS Winter, Hedwigia **25**: 99. 1886.

On *Mimosa alba* H. & B.

ANTIOQUIA: Angelopolis, No. *213* (R. A. Toro), July 27, 1927.

*62. MELIOLA INTEGRISETA Speg., Anal. Mus. Nac. Hist. Nat., Buenos Aires **32**: 376. 1924.

Meliola sapindacearum Speg. var. *integriseta* Speg. Anal. Mus. Nac. Hist. Nat. Buenos Aires, **10**: 328. 1909.

Meliola Stevensii Beeli, Bull. Jard. Bot. Bruxelles **7**: 98. 1920.

Meliola integriseta Speg. var *Stevensii* Stev., Ann. Mycol. **26**: 254. 1928.

On *Serjania membranacea* Split.

CUNDINAMARCA: Along Funza river trail to Central San Antonio, No. *687*, July 11, 1929.

63. MELIOLA LANTANAE Sydow, Mem. Soc. Neuch. Sc. Nat. **5**: 434. 1914.

This species agrees in general characters with *M. ambigua* Pat. & Gaill. from which it differs in that a pseudo-ostiolum, as described for the latter, is not present in the Colombian material *M. microspora* Pat. & Gaill. conforms more with the characters of our species but it has much smaller spores. A comparison of the types of these three species will probably show that they are identical and then *M. ambigua* would be the valid name for reason of priority. As probable synonyms can be also added *M. hyptidis* Syd. and *M. cavitensis* Yates.

On *Lantana hispida* H. B. K.

ANTIOQUIA: Angelopolis, No. *226* (R. A. Toro), July 27, 1927.

On *Lantana lilacina* Desv.

EL VALLE: Near Santa Ana, between Cartago and Cauca river, No. *371*, May 29, 1929.

On *Lantana* sp.

TOLIMA: Ravines along Rd. near Ibagué, No. *563*, June 20, 1929.

MELIOLA MANGIFERAE Earle, Bull. N. Y. Bot. Gard. **3**: 307. 1905.

On *Mangifera indica* L.

PANAMA: Panama along Rd. 8 mi. E. of City, No. *187*, April 28, 1929.

*64. MELIOLA NIDULANS (Schw.) Cooke, Grevillea **11**: 37. 1882.

Sphaeria nidulans Schw., Fung. Carol. **1882**: 45.

On *Vaccinum* sp.

ANTIOQUIA: Medellín, No. *247* (R. A. Toro), Sept. 3, 1927.

*65. Meliola Panici Earle, Muhlenbergia **1**: 12. 1901.

On *Panicum* sp.

Antioquia: La Primavera, Near Medellín, No. *316* (R. A. Toro), Dec, 25, 1927.

*66. Meliola pithecolobicola Speg. Anal. Mus. Nac. Hist. Nat. Buenos Aires **32**: 371. 1924.

On *Pithecolobium lanceolatum* (H. & B.) Benth.

Valle: Santa Ana, Near Cartago, No. *373* May 29, 1929.

*67. Meliola Rudolphiae Stevens, Illinois Biol. Monog. **24**: 43. 1916.

Although setae and spore characters of our specimens do not fully agree with those given in the original description, we do not feel justified in establishing a new species on this account as observations have shown that these characters are very variable in this particular species. Our specimen shows variations ranging from the Beelian formula 3111: 42.21 to 3111: 52.21, while the formula for the species corresponds to 3111: 52.22.

On Caesalpinaceae.

Cundinamarca: Along Funza river, trail to Heda. San Antonio, Near Apulo, No. *685a*, July 11, 1929.

*68. Meliola Stenotaphri Stevens, Illinois Biol. Monog. **24**: 41, 1916.

On *Stenotaphrum secundatum* (Walt.) Kuntze.

Antioquia: Angelopolis, No. *217* (R. A. Toro), July 27, 1927.

Family 2. Capnodiaceae

*69. Aithaloderma longisetum Sydow, Ann. Mycol. **11**: 258. 1913.

On *Coffea arabica* L.

El Valle: Bitaco No. *482*, June 11, 1929.

*70. Euantennaria tropicicola Speg., Bol. Acad. Nac. Ci. Córdoba **23**: 187. 1919.

On *Eupatorium tacotanum* Llatt. var. *trineurolopis* Rob.

Boyacá: Duitama, No. *560* (R. A. Toro), Jan. 10, 1930.

*71. **Paracapnodium brasilense** (Speg.) char. emend.

Paracapnodium brasilense (Auct., nec. Putt.) Speg. Physis **4**: 288. 1918.

Capnodium brasilense Auct. p. p. in litt.

Fungus epiphyllous, thickly scattered over the leaf surface, sooty black; mycelium dematoid; hyphae branched, sometimes running close together, branches at righ angles, thick-waled, closely septate. forming a continuous chain of rounded toruloid cells 3–4u wide; perithecia solitary, short stipitate, numerous, ovate, 95–100 x 60–70 u, astomous, dehiscing by a longitudinal slit dark colored, composed of small parenchymatic cells 5–7 u in diameter, with 3–7 asci; perithecial stalk formed by a closely interwoven knarl of narrow, septate hyphae, 12–16u high, asci obovate, aparaphysate, short stipitate, 80–88 x 17–22 u, sp. p. 70–80 x 15–20u, 8-spored; spores inordinate, hyaline, club-shaped, muriform, constricted at the middle, thick-walled, 14–27 x 8–12 u.

Pycnidia flask shaped, 200–250 u high, formed by parallel hyphae closely appressed, separating at the top for the dehiscence of the small, oval, one-celled, hyaline pycnospores.

The genus *Paracapnodium* was established by Spegazzini (**24**) with P. *pulchellum* Speg. as type. It differs from *Capnodium* Mont. in the color of spores and in the shape of the perithecia.

Several species of Capnodiaceae have been described on coffee all of them causing the characteristic sooty mold. *Leptocapnodium brasilense* (Putt.) Arn. has transverse septate and is identical with *Capnodium brasilense* Putt. (nec. Auct.); *Aithaloderma longisetum* Sydow possess perithecia with setae and according to Sydow (l. c.) is identical with *Capnodium Coffeas* Pat.; *Phaeosaccardinula costaricensis* (Speg.) Th. and *P. tahitensis* (Pat.) Th. have non-stipitate perithecia with ostiola, while *Limacina coffeicola* Putt. possess non-stipitate perithecia with hyaline, many celled spores.

On leaves of *Coffea arabica* L.

ANTIOQUIA: No. *348* (R. A. Toro), April 10, 1927.

ORDER VI.—PSEUDOSPHAERIALES.

(Rafael A. Toro)

Family I. PARODIELLACEAE

72. EPIPHYMA NEUROPHILUM Theiss, Ann. Mycol. **14**: 404. 1916.

On *Tibouchina* sp.

ANTIOQUIA: Near Medellín, No data. (C. E. Chardon)

*73. PARODIELLA PARAGUAYENSIS Speg., Fungi Guaranitici **1**: 226. 1886.

On *Meibomia purpurea* (Mill) Vail.

ANTIOQUIA: Near Medellín, No. *282* (R. A. Toro), Oct. 15, 1927.

*74. Parodiella perisporioides (B. & C.) Speg., Anal. Soc. Ci. Argent. **2**: 178. 1880.

Dothidea perisporioides B. & C., Grevillea **4**: 103. 1876.

On *Indigofera suffructicosa* Mill.

Antioquia: Titiribí, No. *269* (R. A. Toro), August 8, 1927.

On *Meibomia* sp.

Antioquia: Pto. Berrío, No. *3749* (F. W. Pennell) Jan. 11, 1918.

Order VII.—HYPOCREALES.

(Carlos E. Chardon)

Family 1—Nectriaceae

*75. Nectria episphaeria (Tode) Fr., Summa Veg. Scand. 388. 1845.

Referred to this species although it did not occur, as usual, on old sphaeriaceous fungi. Spores obliquely uniseriate, broad-fusoid, 10–12 x 5–6 u.

On dead bark and roots.

Antioquia: El Poblado, No. *48*, May 16, 1926; near Fredonia, No. *353* (coll. R. A. Toro) June 18, 1928.

*76. **Nectria Ingae** Chardon sp. nov.

Perithecia sparingly scattered or very seldom in close contact but with no evidence of a stroma, globose with a slightly papillate ostiolum, 170–250 u in diameter, orange in color with the surface slightly granulose but with no hairs; asci cylindrical, 8-spored, 70–85 x 9 x 12 u, with the spores obliquely uniseriate or partially biseriate; spores hyaline, 1-septate, smooth, fusoid, 12–14 x 5 u; paraphyses filiform.

Characterized by numerous, scattered orange perithecia on the outer surface of the pods of the host.

On dead pods of *Inga*.

El Valle: Hacienda Bitaco, Cordillera Occidental, No. *469*. June 11, 1929 (type).

*77. **Allantonectria creonectrioides** Chardon sp. nov.

Perithecia in dense, regular caespitose clusters, 8–15 in each, seated on a yellowish stroma; individual perithecia globose, flattened at the top with the ostiolum not prominent, 200–300 u in diameter or more, pale yellow in color, slightly roughened in its surface; asci long cylindrical, 80–90 x 6–8 u, 8 spored with the spores invariably uniseriate; spores 1-celled, hyaline, smooth, fusoid to navicular, with the ends acute, 14–16 x 5–6 u; paraphyses filiform.

Similar in macroscopic characters to a *Creonectria,* but with the spores simple.

On dead bark.

EL VALLE: Hacienda El Hatico, between Cerrito and Palmira, No. *735*, May 23, 1929 (type).

*78. **Creonectria tucumanensis** (Speg.) comb. nov.

Nectria tucumanensis Speg., Myc. Argent, 407. 1909.

The Colombian specimens supplied by Toro agree very well with Spegazzini's description and excellent illustration (loc. cit. fig. 22). The spores are unusually large, 28–36 x 9–11 u, distinctly striate, suballantoid and slightly constricted at the septum. The bright red color of the clusters of perithecia are very characteristic. The papillate ostiola are also very pronounced, but the characteristic brown disk around the region of the ostiolum is lacking in almost all the perithecia. *Creonectria macrospora* Chardon reported from Porto Rico and Venezuela (**22**) is possibly this same species. *Nectria tucumanensis* Speg. has been reported from Costa Rica by Rowlee (**20**).

On bark of *Inga* sp.

ANTIOQUIA: Heliconia, No. *324* (coll. R. A. Toro), May 1, 1928.

On bark of *Albizzia malacocarpa* Stand.

ANTIOQUIA: Heliconia, No. *323* (coll. R. A. Toro), Jan. 18, 1928.

*79. SPHAEROSTILBE COCCOPHILA (Desm.) Tul. Fung. Carp. **1**: 130. 1861.

On scale insects on *Citrus Decumana* L.

EL VALLE: Small grapefruit orchard between Cali and Palmira. No. *227*, May 11, 1929.

*80. MEGALONECTRIA PSEUDOTRICHIA (Schw.) Speg., An. Soc. Ci. Argent. **12**: 82. 1881.

Perithecia in cespitose clusters around the stalked, upright stroma. Spores muriform, hyaline, 28–35 x 7–8 u. A very common species in the American tropics.

On dead bark.

CALDAS: Along Quindio River, near Armenia, No. *726*, July 14, 1929.

*81. GIBERELLA PULICARIS (Fr.) Sacc., Michelia **1**: 43. 1877.

On dead stalks of *Zea mays* L.

EL VALLE: Todos los Santos, along road between Buga and San Pedro, No. *408*, June 4, 1929.

82. GIBERELLA SAUBINETII (Durieu Mont.) Sacc. Michella 1:43. 1877.

This fungus was found on an isolated wheat plant growing in a garden at a coffee farm. It is very probable that the wheat seed came up from the United States, with the other vegetable seeds that had been imported for garden use.

On *Triticum aestivum* L.

EL VALLE: Coffee plantation above Pavas, Cordillera Occidental, No. *511*, June 12, 1929.

Family 2—HYPOCREACEAE

83. HYPOCREA RUFA (Pers.) Fr., Summa. Veg. Scand. 383. 1849.

On dead wood and burnt stalks of *Saccharum officiarum* L.

EL VALLE: Hacienda Riopaila, S. Zarzal, Nos. *383* and *539*, May 31 and June 19, 1929, respectively; Hacienda Bitaco, Cordillera Occidental, No. *507*, June 11, 1929.

ORDER VIII.—**DOTHIDEALES.**

(Carlos E. Chardon)

Special attention has been given by the senior writer to the collecting and study of this large order, so richly represented in tropical regions. The treatment of the order presented in the well-known monograph of Theissen and Sydow (**36**) is invariably followed here, although that work needs a thorough revision and the addition of several hundred species subsequently described.

Theissen and Sydow (l. c.) divided the order into four families: Polystomellaceae, Dothideaceae, Phyllachoraceae and Montagnellaceae. In a subsequent work by these authors (**37**), the Polystomellaceae is removed to the Hemisphaeriales. Of the other three families only two are so far known to occur in Colombia, the Dothideaceae and the Phyllachoraceæ.

Only 30 species of this group are hitherto known to occur in Colombia which is a rather small representation considering the large number of species known from other tropical countries, like Porto Rico and Costa Rica. In the present paper, 53 species are reported, 46 of which were collected in Colombia proper and 7 in Panama. Of the 46 species reported from Colombia, 31 are new additions to Colombia (which more than doubles the number of species so far known) and 13 species are new to science. Nevertheless, the number of Dothideales in the flora of Colombia may be greatly increased in future collections and studies.

The following key will serve to differenciate the families, tribes and genera of Dothideales represented here:

I—Stromata erumpent, dothideaceous

Fam. 1—DOTHIDEACEAE

A—Spores 1-celled	
1—Spores hyaline	1—*Bagnisiopsis*
2—Spores brown	2—*Dothidina*
B—Spores 2-celled	
1—Spores hyaline	
a—Paraphyses present	3—*Uleodothis*
b—Paraphyses absent	4—*Dothidella*
2—Spores brown	5—*Achorella*

II—Stromata subcuticular, subepidermal or in the mesophyll, not dothideaceous

Fam. 2—PHYLLACHORACEAE

A—Stromata subcuticular	Tribe 1—*(Trabutiineae)*
1—Spores 1-celled, hyaline	
a—Paraphyses present	6—*Trabutia*
b—Paraphyses absent	7—*Trabutiella*
2—Spores 2-celled, hyaline	8—*Munkiodothis*
B—Stromata subepidermal	Tribe 2—*(Scirrhiineae)*
1—Spores 1-celled	
a—Spores hyaline	9—*Catacauma*
b—Spores brown	10—*Phaeochorella*
C—Stromata in the mesophyll	Tribe 3—*(Phyllachoriineae)*
1—Spores 1-celled	
a—Spores hyaline	11—*Phyllachora*
b—Spores brown	12—*Sphaerodothis*
2—Spores 4-celled	
a—Spores hyaline	13—*Phragmocarpella*
b—Spores brown	14—*Homostegia*

Family 1—DOTHIDEACEAE.

84. BAGNISIOPSIS TIJUCENSIS Theiss. & Syd., Ann. Mycol. **13**: 291. 1915.

This is a young stage of the fungus, which had been previously reported by Chardon (**5**) on this same host, based on collections made by Toro in Antioquia.

On *Tibouchina longifolia* (Vahl.) Baill.

CALDAS: Ravines near Armenia, No. *543*; June 19, 1929.

*85. **Bagnisiopsis advena** Sydow sp. nov.

Stromata hypophyllous in groups of 2–8 mm, more or less densely disposed, causing yellowish or brownish discolorations on the upper

surface of the leaf, obovate or pear-shaped, often very irregular, 300–450 u high, 170–300 u in diameter, at the top broadly rounded, without a distinct ostiolum, opening by an irregular pore, toward the base gradually tapering into a foot-like innate hypostroma, always unilocular; perithecium ovate or pear-shaped, often rregular, the lower half innate into the leaf, the upper half erumpent; perithecium-wall of the lower half 7–10 u thick consisting of several layers of dark brown cells, wall of the upper erumpent half thicker, up to 35 u; asci numerous, clavate, apically broadly rounded, toward the base attenuate, shortly stipitate, 8–spored, sometimes only 4–6 spored, 60–80 u long, 16–30 u broad. Spores obliquely monostichous or incompletely distichous, oblong or oblong-elliptical, broadly rounded, continuous, for a long time hyaline finally greyish-brown or olivaceous-brown, 16–25 u long, 10–12 u broad. Metaphises numerous, broadly filiform 2–3 u broad, soon mucose.

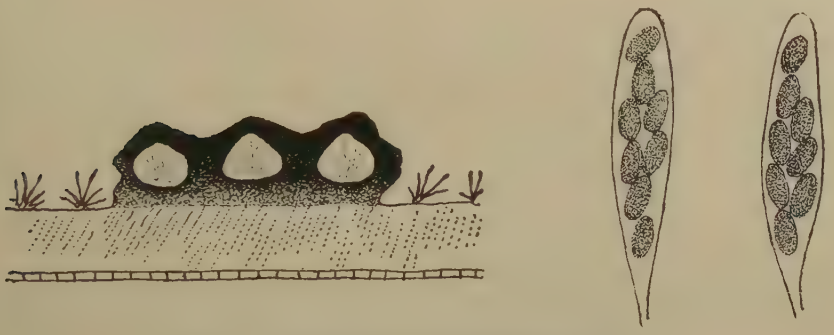

FIG. 4.—DOTHIDINA SCABROSA SYDOW

On *Gynoxis* sp.

CUNDINAMARCA: Cerro Monserrate near Bogotá, No. *612*, June 25, 1929. (type).

*86. DOTHIDINA PERIBEBUYENSIS (Speg.) Chardon, Mycologia **13**: 289. 1922.

Phyllachora peribebuyensis Speg., Anal. Soc. Ci. Argent. **19**: 244 1886.

Auerswaldia Miconiæ P. Henn., Hedwigia **43**: 253. 1904.

A very common and conspicuous species in the American tropics occurring on various Melastomaceæ.

On *Miconia* sp.

EL VALLE: Colegio N. S. de los Andes, Cordillera Occidental, above Cali, No. *443*, June 9, 1929.

DOTHIDINA SCABROSA Sydow, Ann. Mycol. **23**: 284. 1925.*

An abundant collection of this species was made but few stromata were fertile. The spores were 12–14 x 7–8 u, elliptical and slightly olivaceous green. It compares very well with type material (Sydow, fungi exot. exs. *672*) on *Miconia argentea* from Costa Rica.

On *Miconia macrophylla* (D. Don) Triana.

PANAMÁ: Trail near house at Barro Colorado Island, No. *195*, Apr. 29, 1929.

*87. **Uleodothis andina** Chardon sp. nov.

Spots epiphyllous or sometimes amphigenous, not exceeding the stromata; stromata dothideaceous, black, not shiny, warty, consisting of a clustered stroma, which in cross section show 2–5 globose

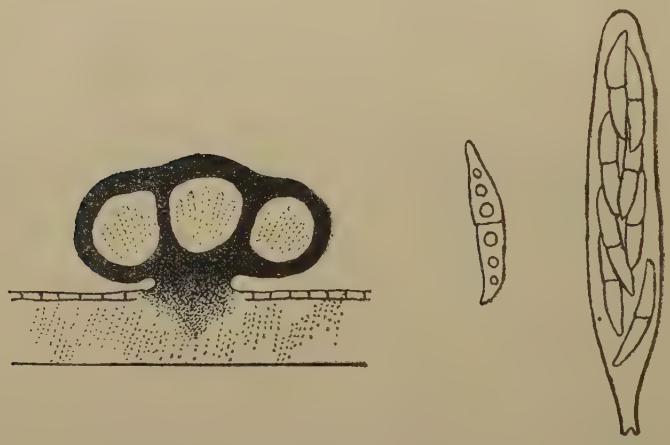

FIG. 5.—ULEODOTHIS ANDINA SP. NOV.

locules, 200–250 x 180–200 u, the whole clustered stroma being attached to the leaf by a base 100–200 u wide, the stromatic base penetrating (hypostroma) deeply in the leaf tissues; asci clavate, 8-spored, with the spores biseriate, 80–100 x 16–20 u; spores 2-celled, hyaline, 28–30 x 4.5–5 u, full of oil drops, the septum not very clearly visible, longfusoid and suballantoid; paraphyses present.

The stroma suggests clearly a *Bagnisiopsis* or a *Dothidina*, but the 2-celled, hyaline spores makes the fungus fall under *Uleodothis*, a genus which is represented in Theissen and Sydow (**36**) by only

* The fungi from Panamá are not included in the numerical order of species, which applies only to the fungi of Colombia treated in this paper.

three species, none of the descriptions of which agree with our Colombian material. (Plate XXXIV, A and fig. 5.)

On *Mikania Ruiziana* Poepp.

El Valle: College N. S. de los Andes, Cordillera Occidental above Cali, No. *447 b*, June, 9, 1929 (type).

88. Dothidella tinctoria (Tul.) Sacc. Syll. Fung. **11**: 627. 1883.

This is one of the most conspicuous and common parasitic fungi of the Colombian and Ecuadorian Andean region and was first reported by Tulasne (**40**) on collections made by Triana. Chardon (**4**) again collected and reported it from Antioquia (see pl. 1 fig. 5 of his paper). The identification of this species, however, offers some doubt due to the fact already stated "por el hecho de que existe mucha confusión entre las distintas *Dothidellas* que se conocen sobre *Baccharis.*"

Stevens (**27**) has described *Clypeodiplodina Baccharidis* from Ecuador and has kindly supplied the writer with a specimen which unquestionably is the *Dothidella tinctoria* reported here. Whether the fungus really belongs to the new genus *Clypeodiplodina* or to *Dothidella* is a matter for future study.

On *Eupatorium popayanense* Hieron.

Antioquia: Parque Independencia, Medellin, No. *248* (coll. R. A. Toro) Sept. 3, 1927; Granizales, No. *291*, (R. A. Toro) Nov. 3, 1927; La Primavera, No. *313* (R. A. Toro) Dec. 25, 1928.

On *Baccharis floribunda* H. B. K.

El Valle: Km. 25, Carretera al Mar, Cordillera Occidental, No. *468*, June 10, 1929; along path between Bitaco and La Cumbre, Cordillera Occidental, No. *512*, June 12, 1929.

Cundinamarca: Ravine between Cerro Monserrate and Guadalupe, above Bogotá, No. *614*, June 25, 1929; slopes of Salto de Tequendama, No. *652*, July 6, 1929.

On *Baccharis Lehmannii* Klatt.

Antioquia: Km. 21, Tranvía de Oriente, No. *62*, May 18, 1926.

*89. Dothidella portoricensis Stevens, Bot. Gaz. **69**: 249. 1920.

This is the first report of this species outside of Porto Rico. The specimen compares favorably with the type material.

On *Dicranopteris flexuosa*

El Valle: College N. S. de los Andes, above Cali, No. *444*. June 9, 1929.

90. ACHORELLA TOROANA Chardon, Jour. Dept. Agric. Porto Rico **13**: 6. 1929.

The material, although scant, has been compared with the type, which was collected by R. A. Toro in Guarnes, Antioquia on *Cavendishia.*

On *Cavendishia cordifolia* (HBK) Hook.

CUNDINAMARCA: Cerro Monserrate, above Bogotá, (coll. L. M. Murillo) Nov. 15, 1929.

*91. MYRIOGENOSPORA BRESADOLEANA P. Henn., Hedwigia **41**: 9. 1902.

On *Paspalum conjugatum* Berg.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *470*, June 10, 1929.

Family 2—PHYLLACHORACEAE.

Tribe 1. TRABUTIINEAE.

*92. **Trabutia calarcana** Chardon sp. nov.

Spots approximately circular, formed in the epiphyll by a large number of small, black stromata which through confluence, form a compound, laberynthiform stroma which becomes very conspicuous, 4–6 mm. in diameter, the spots in the hypophyll are limited to brown discolorations approximately circular; 3–4 mm. in diameter; stromata covering the upper portion of the locule, originating between the cuticle and the epidermis; locules single, elliptical or lenticular, 160–200 x 60–80 u, but becoming very large thru coalescence; asci clavate, 8–spored, with the spores biseriate or inordinate, 48–60 x 18–20: spores 1–celled, hyaline, smooth, elliptical, 12–14 x 5–6 u; paraphyses present. (Plate XXXIV, B and fig. 6.)

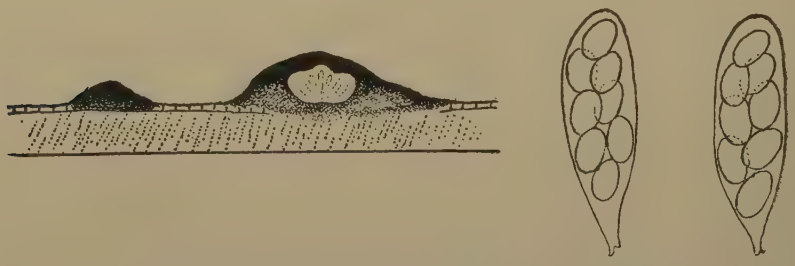

FIG. 6.—TRABUTIA CALARCANA SP. NOV.

This is very distinct in stromatal and spore characters from *Catacauma caracaense* (Rehm) Th. & Syd., on Malphigiaceae from Brazil. It is characterized by its compound laberynthiform stromata on the upper surface of the leaf.

On undetermined species of Malphigiaceae.

CALDAS: Ravines near Calarcá, along Armenia-Ibagué road, No. *706*, July 13, 1929 (type).

Trabutiella Diazii Chardon sp. nov.*

Stromata epiphyllous, black, not shiny, conspicuous, approximately circular, 2–3 mm. in diameter or else very irregular and following the main vein of the leaf, the stroma originating between the cuticle and the epidermis, locules many, usually 3–5, ellipsoidal or irregular thru lateral pressure, 180–250 x 100–150 u, or becoming as large as 500–600 u thru coalescence, bordered at the top by the black stroma; asci clavate, 8-spored, with the spores inordinate, 50–70 x 20–25 u; spores 1-celled, hyaline, smooth, spherical, 8–10 u in diameter; paraphyses absent. (Plate XXXIV, C.)

The absence of paraphyses makes this species fall under *Trabutiella* Theiss. & Sydow (Ann. Mycol. **13**: 359. 1915). The spherical spores are characteristic. Named in honor of Sr. Antonio Díaz, who made possible our excursions and accompanied us to various sections of the country.

On *Machaerium* sp.

PANAMÁ: Finca la Isleta, along road 5 miles E. of Panamá City, No. *177*, Apr. 28, 1929 (type).

*93. **Munkiodothis Hilarionii** Chardon sp. nov.

Spots approximately circular, 8–10 mm. in diameter, amphigenous, very conspicuous in the hypophyll, where it is made up of a flat, spreading stroma, black, but not shiny, roughly circular, 5–6 mm. across and bordered around its circumference by a zone of yellowish tissue, 2–3 mm. across which gradually fades away its yellow color with the green of the healthy leaf tissue, in the epiphyll the spots are of the same size, roughly circular, brown in its central portion and yellowish on its border; stromata originating between the cuticle and the epidermis, unilocular, with the locules flat, 400–500 x 30–40 u, bordered on all sides by the stroma, later coalescing into very large locules over 1 mm. in length and 150–180 u high enclosing asci and paraphyses; asci cylindrical, 8-spored, 80–100 x 10–11 u, with spores uniseriate; spores hyaline, 2-celled, with the upper cell larger than the lower, 16–18 x 7–10 u; paraphyses filiform. (Fig. 7.)

The subcuticular stroma in this species places it in the Trabutiineae of the Phyllachoraceae, while the 2-unlike celled hyaline spores places it under *Munkiodothis*, a rare genus with only one known species *M. melastomata* (v. Hohn.) Th. & Syd., which occurs on Melastomaceae from Java and the Philippines, and from which our species is evidently distinct. Our new species is dedicated to Her-

* See note on page 245.

mano Hilarion, Director of the "Colegio de Nuestra Señora de los Andes", whose cordial hospitality we had the pleasure of enjoying.

On undetermined dicotyledonous plant.

EL VALLE: Colegio N. S. de los Andes, Cordillera Occidental, above Cali, No. *447*, June 9, 1929 (type).

Tribe 2—SCIRRHIINEAE.

*94. CATACAUMA CONTRACTUM Sydow, Ann. Mycol. **23**: 365. 1925.

The material has been compared with the type specimen which is Sydow's *273*, on *Gouania tomentosa* Jacq., from near San José,

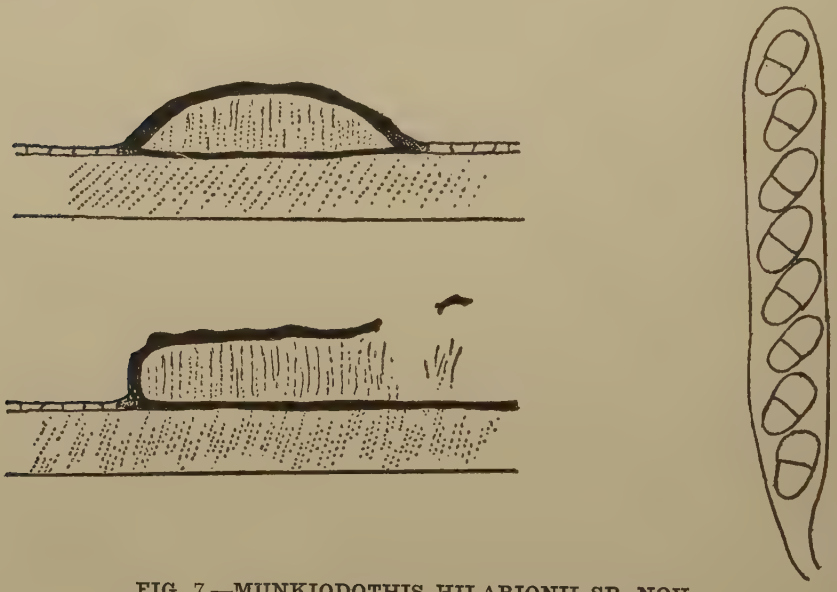

FIG. 7.—MUNKIODOTHIS HILARIONII SP. NOV.

Costa Rica. Spores 9–10 x 4–5 u. *Catacaumella Gouaniæ* Stevens the type of which has been examined occurs on *Gouania* in Costa Rica and the West Indies, has larger spores, 12–17 x 6–9 u.

On *Gouania polygama.*

ANTIOQUIA: Near Angelópolis, No. *294* (Coll. R. A. Toro) Jan. 22, 1928.

*95. CATACAUMA RENALMIAE (Rehm) Th. & Syd., Ann. Mycol. **13**: 375. 1915.

Phyllachora Renalmiæ Rehm, Hedw. **36**: 373. 1897.

Agrees with numerous collections made by Stevens in Porto Rico

on *Alpinia antillarum*. It has been compared with type material at the herbarium Bureau Plant Industry, Rabenhorst-Pazschke, Fungi europæi et extraeur. *1165*, labelled *Ph. Renalmia* Rehm n. sp. on *Renalmia* sp. coll. by E. Ule in Sta. Catharina, Brasil, July 1886.

On *Alpinia* sp.

ANTIOQUIA: Near Salgar, Western Andes, No. *372*, (Coll. R. A. Toro), July 20, 1928.

Catacauma panamensis Chardon sp. nov.*

Spots epiphyllous not larger than the stromata: stromata shining black, conspicuous, epiphyllous, convex, scattered at first, round, about 1 mm. in diameter, becoming confluent later by the coalescence of 3–5 or more stromata, and hence assuming irregular shapes, much less visible in the hypophyll: stromata situated between the epidermis and the mesophyll; asci cylindrical-clavate, 70–82 x 10–15 u, 8-spored with the spores uniseriate, or biseriate in the main body of the ascus: spores blunt ellipsoidal, hyaline, 1-celled, 10–12 x 5–6 u; paraphyses filiform, profuse.

An apparently new species, differing from all known *Catacauma* on *Bauhinia*.

On *Bauhinia* sp.

PANAMÁ: Finca la Isleta, along road 5 m. E. of Panamá City No. *178*, Apr. 28, 1929 (type): Ravine near Orsini's orange grove, at Capira, No. *205*, Apr. 30, 1929.

CATACAUMA RHOPALINUM (Mont.) Theiss. & Syd., Ann. Mycol. **13**: 385. 1915.

Dothidea rhopalina Mont., Syll. Crypt. 222. 1856.

Phyllachora rhopalina Sacc., Syll. Fung. **2**: 595. 1889.

Ph. Roupalæ Rehm., Hedwigia **39**: 234. 1900.

Ph. Rhopalæ P. Henn., Hedwigia **48**: 7. 1908.

This species is reported on the basis of a determination made by Dr. H. Sydow, to whom our specimen was sent and who referred it to *Phyllachora rhopalina* (Mont.) Sacc. Theissen and Sydow (**36**) refer it to *Catacauma*, while Sydow ( ) considers it as a transition form between *Catacauma* and *Phyllachora*. It appears to be a common species on different species of *Roupala* in Cayenne, Perú, Brasil and Costa Rica.

On *Roupala montana* Aubl.

PANAMÁ: Roadside near Chorrera, No. *207*, Apr. 30, 1929 (det. H. Sydow).

* See note on page 245.

*96. **Phaeochorella sphaerospora** Chardon sp. nov.

Spots not exceeding the stromata; stromata epiphyllous, black, shiny, convex, approximately circular, 1–3 mm. across, distinctly situated between the epidermis and the mesophyll; locules several in the stroma, usually 2 or 3, large, flat ellipsoidal or sometimes angular, 300–500 x 150–300 u, bordered on the top by the black, crust-like stroma; asci clavate, 8-spored, 50–65 x 20–25 u, with the spores inordinate; spores 1-celled, with a definite smooth wall and yellow brown contents, spherical, 9–12 u in diam.; paraphyses filiform, inconspicuous. (Fig. 8.)

This is a distinctly *Catacauma*-like fungus, but its yellow brown spores makes it fall under *Phaeochorella*. Its spherical brown spores are specific. Occurring in the same specimen and leaves as *Pseudothis*.

On *Machaerium angustifolium* Vogel.

ANTIOQUIA: Near Salgar, Western Andes, No. *359* (Coll. by R. A. Toro), July 20, 1928 (type).

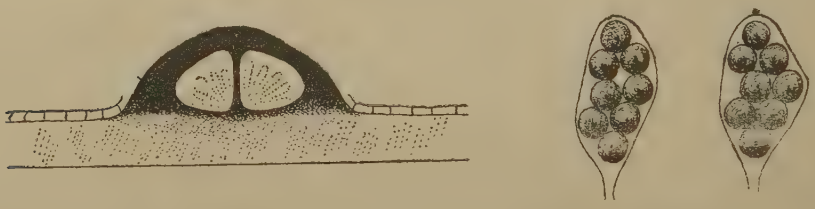

FIG. 8.—PHAEOCHORELLA SPHAEROSPORA SP. NOV.

Tribe 3—PHYLLACHORIINEAE.

*97. **Phyllachora Molinae** Chardon sp. nov.

Spots amphigenous, yellowish, conspicuous, slightly exceeding the stromata, 2–3 or more mm. long and 1 to 1.5 mm. wide; stromata, black, not shiny, more conspicuous and pronounced in the upper surface of the leaf, globose at first about 1 mm. in diameter, later coalescing and becoming 2–3 mm. long, its length parallel to the main axis of the leaf, 1–3 loculate, with the thicker portion of the stroma bordering the roof of the locules, completely immersed in the mesophyll of the leaf; asci clavate, 8-spored, 70–90 x 14–16 u, with the spores biseriate in the main body of the ascus; spores 1-celled, hyaline, smooth, long elliptical, 14–17 x 4.5 u; paraphyses present.

Differs from *Ph. microspora* Chardon collected and described by the writer from Antioquia, Colombia, in having spores twice as large. It is also different from all other *Phyllachora* on *Paspali*, known to the writer. This species seems to be one of the commonest *Phyllachora* on grasses in the "tierra templada" of Colombia.

The species is dedicated to Dr. Ciro Molina Garcés, the enthusiastic Secretary of Industry of the Department of Valle del Cauca, whose splendid cooperation was a constant stimulus to our work.

On *Paspalum paniculatum* L.

El Valle: Hacienda Bitaco, Cordillera Occidental, Nos. *476*, *477* (type) & *487*, June 10–11, 1929; College N. S. de los Andes, Cordillera Occidental, above Cali, No. *463*, June 10, 1929.

Cundinamarca: Granja La Esperanza, No. *585*, June 23, 1929.

Phyllachora microspora Chardon, Bol. Real Soc. Esp. Hist. Nat. **28**: 119. 1928.*

Spores uniseriate, small, 6–7 x 3 u. Compares very well with the type material. This is the second collection made of this species.

On *Paspalum paniculatum* L.

Panamá: Near Frijoles R. R. Station, Canal Zone, No. *202*, Apr. 29, 1929.

Phyllachora cornispora-necrotica Chardon, Bol. Real Soc. Esp. Hist. Nat. **28**: 116. 1928.

Phyllachora Paspali Earle in herb.

The specimen agrees very well with the type species described and collected by the writer, No. *168*, at Puerto Wilches, along the Magdalena River in 1926. The spores are long-ellipsoidal, biseriate, 15–16 x 4–5 u, with a characteristic slightly curved tip.

In the herbarium of the N. Y. Botanical Garden, the senior writer found a specimen from Porto Rico, Mr. & Mrs. Heller's No. *1381* on *Pasp. virgatum*, Cataño, Mar. 23, 1899, which had been critically studied by the late Prof. F. S. Earle, and regarded as a new (unpublished) species. The description, in Earle's handwriting, reads:

"Stromata amphigenous, scattered, without determinate spots, black, oblong, ends sub-rounded, 1–2 x ½ mm., black within, locculi few, indistinct. Asci irregularly obovate, 50–60 x 10–6 u. Spores subdistichous, oval, nearly equilateral, continuous, slightly tinted, with a hyaline apiculus at one end, 5–7 u long, spore without apiculus 16–18 x 7 u."

This fits in exactly with *Ph. cornispora-necrotica* Chardon, and a microscopic examination confirmed the identity of the Porto Rican, Colombian and Panamanian material. Unfortunately, no credit can be given here to Earle's species on the basis of priority since it had never been published.

Phyllachora cornuospora Atk. has also beaked spores, 15–17 x

* See note on page 245.

4–6.5 u. Its type, on *Panicum longifolium* Torr. from Auburn, Ala., was also examined at the N. Y. Botanical Garden, but its stromata are usually uniloculate and macroscopically look different from the tropical species known on *Pasp. virgatum*.

On *Paspalum virgatum* L.

PANAMÁ: Near Fríjoles R. R. Station, Canal Zone, No. *201*, Apr. 29, 1929.

98. PHYLLACHORA PASPALICOLA P. Henn., Hedwigia **48**: 106. 1908.

The type specimen of this species was examined at the herbarium of the Bureau of Plant Industry. It was collected by C. F. Baker in the vicinity of Pará, Brazil on *Paspalum* sp. (evidently not *Pasp. conjugatum*) and distributed as Rehm's Ascomycetes No. *1785*. The stromata are uniloculate and the spores lemon shaped, uniseriate, 10–11 x 5–6 u. The numerous specimens on *Pasp. conjugatum* known to the writer do not seem to essentially differ from Henning's type and are thus referred to that species.

Most of the specimens examined yielded profusely 1-celled, long-fusoid stylospores with acute, sharply curved ends, 21–23 x 2–2.5 u, but a number of stromata, especially in No. *197*, showed numerous asci and spores 10 x 5 u, lemon shaped which compared very well with material from Porto Rico and with Mayor's No. *158*, collected on the same host in Angelópolis, Antioquia. This is one of the commonest *Phyllachora* on grasses in Colombia and Porto Rico.

On *Paspalum conjugatum* Berg.

PANAMÁ: Near house at Barro Colorado Island, Canal Zone, No. *197*, Apr. 29, 1929.

EL VALLE: Finca Las Cañas, S. of Jamundi, No. *278*, May 15, 1929; Hacienda Bitaco, Cordillera Occidental, No. *471*, June 10, 1929.

TOLIMA: El Boquerón, W. of Ibagué long road to Armenia, No. *696*, July 13, 1929.

*99. PHYLLACHORA GUIANENSIS Stevens, Ill. Biol. Mon. **8**: 19. 1923.

The specimen compares well with material collected by Stevens in British Guiana, (No. *712*, from Georgetown): the stromata are surrounded by the characteristic zone of dead host tissue, the spores uniseriate, elliptical, 8–12 x 4–4.5 u. The spots look like those of *Ph. cornispora-necrotica* Chardon which occurs on *Pasp. virgatum* but the spore characters are different.

On *Paspalum virgatum* L.

El Valle: Near Buenaventura, No. *213*, May 8, 1929.

On *Paspalum plicatulum* Michx.

El Valle: Near Buenaventura, No. *215*, May 8, 1929.

100. Phyllachora microstroma Chardon, Bol. Real Soc. Esp. Hist. Nat. **28**: 118. 1928.

Stromata characteristically small. Spores 10–12 x 4–5 u, which are slightly larger than the type (No. *139*) which is known from the Magdalena River, near Barranca Bermeja. This is the second collection made.

On *Panicum laxum* Swartz.

El Valle: Hacienda el Hatico, between Cerrito and Palmira, No. *345*, May 23, 1929.

*101. Phyllachora insularis Chardon, Jour. Dept. Agric. Porto Rico **13**: 11. 1929.

Stromata multiloculate, epiphyllous, arranged in linear rows parallel to the main axis of the leaf, similar to those of *Ph. Eriochloæ* Speg. Spores 9–10 x 4–4.5 u with blunt ends typical of the species, which was previously known to occur from Porto Rico and Santo Domingo. It seems to be a very common species in these countries.

On *Valota insularis* (L.) Chase.

El Valle: Along banks of Cauca River, near Cali, No. *311*, May 21, 1929; dry thickets near San Pedro, N. of Buga, No. *422*, June 4, 1929.

102. Phyllachora puncta (Schw.) C. R. Orton; Stevenson, Jour. Dept. Agric. Porto Rico **2**:153. 1918.

This is one of the most common grass species of *Phyllachora* in Colombia, and in tropical America. Spores 8–10 x 4–5 u, distinctly elliptical, uniseriate. *Ph. Oplismeni* Sydow (Ann. Mycol. **5**: 339 1907) from Costa Rica is probably this same species.

Earle (**8**) reported *Phyllachora graminis* (Pers.) Fckl. on *Oplismenus?* from Santa Marta, Colombia, based on a collection made by C. F. Baker. Baker's specimen was examined at the N. Y. Botanical Garden: the host had subsequently been determined by Mrs. Chase as *Opl. hirtellus* (L.) Beauv. and the fungus is evidently not *Ph. graminis* but the common *Ph. puncta*.

So far as we know, *Ph. graminis* is not present in Colombia. Sydow (**31**) reported *Ph. graminis* in the Mayor collections, but these are now to be referred to either *Ph. puncta* (on *Oplismenus*) or to *Ph. Mayorii* (on *Panicum lanatum*). This last species was de-

scribed by the senior writer (**4**), after a reexamination of Mayor's specimen.

On Oplismenus hirtellus (L.) Beauv.

El Valle: Hacienda El Hatico, between Cerrito and Palmira, No. *347*, May 23, 1929; Colegio N. S. de los Andes, Cordillera Occidental, No. *438*, June 9, 1929; Hacienda Bitaco, Cordillera Occidental, No. *488*, June 11, 1929.

Caldas: Ravines near Armenia, No. *544*, June 19, 1929.

On *Pseudochinolaena polystachia* (H. B. K.) Stapf.

Caldas: Along Quindio River, near Armenia, No. 710, July 14, 1929.

103. Phyllachora Eriochloae Speg. var. columbiensis, Theiss. & Syd., Ann. Mycol. **13**: 448. 1915.

The writer is not familiar with the type specimen of *Ph. Eriochloæ* Speg. The determination is based on a comparison with Mayor's No. *158*, collected along the Porce River near Medellin. This was first determined by Sydow (**31**) as *Ph. Eriochloæ* Speg., but Theissen and Sydow (**36**) later gave it the variety named *columbiensis*. The stromata are arranged in linear rows resembling those of *Ph. insularis* Chardon, sometimes 5–8 mm. long, parallel to the main axis of the leaf, spores elliptical, with pointed ends, 10–12 x 4–5 u.

On *Eriochloa punctata* (L.) Desv.

El Valle: Along banks of Cauca River, near Cali, No. *322*, May 21, 1929.

104. Phyllachora antioquensis Chardon, Bol. Real Soc. Esp. Hist. Nat. **28**: 188. 1928.

Spores 16–20 x 4–5 u. Agrees very well with the type (No. *76*) which was collected by the senior writer in Sabaletas, Antioquia, on the same host.

On *Imperata contracta* (H. B. K.) Hitch.

El Valle: Coffee plantations above Pavas, Cordillera Occidental, No. *508*, June 12, 1929.

105. Phyllachora Maydis Maubl., Bull. Soc. Mycol. Fr. **20**: 72. 1904.

A common parasite of corn in tropical America, causing slight damage to the leaves.

On *Zea Mays* L.

El Valle: Colegio N. S. de los Andes, Cordillera Occidental, above Cali, No. *534*, June 9, 1929.

CUNDINAMARCA: Yard at Manager's house, Hacienda San Antonio, No. *692*, July 11–12, 1929.

*106. PHYLLACHORA LASIACIS Sydow, Ann. Mycol. **23**: 374. 1925

Compared with a portion of the type material (Sydow No. *203*) from San José, Costa Rica. Spores 12–14 x 4–4.5 u, long navicular. (Plate XXXIV, D.)

On *Lasiacis* sp.

TOLIMA: Along Combeima River, near Ibagué, No. *577*, June 20, 1929.

*107. PHYLLACHORA BONARIENSIS Speg., Fung. Argent. **1**: 185. 1880.

This compares well with the description of *Ph. bonariensis* Speg. reported on *Panicum bambusoides* from Argentine. The stromata are amphigenous, very conspicuous, equally visible on both surfaces of the leaf, black, shiny, 3–4 mm. long x 1 mm. wide, arranged loosely in long linear rows, parallel to the main axis of the leaf, causing yellow longitudinal streaks in the leaves; locules 1–2 in cross section, lenticular or angular on the adjacent sides, 160–200 x 120–150 u, completely immersed in the mesophyll of the leaf, surrounded on all sides by the black stroma; asci cylindrical, clavate, 8-spored with the spores biseriate in the main body of the ascus, 70–95 x 12–15 u; asci 1-celled, hyaline, smooth, long fusoid with pointed ends, 16–18 x 6–7 u; paraphyses filiform, inconspicuous. (Plate XXXIV, F.)

Our material also compares well with a specimen at the N. Y. Botanical Garden from Venezuela labelled "*Phyllachora bonariensis* Speg., sur feuilles vivantes de *Bambusa*, Atures, août." This is part of a series of Gaillard's "Plants du Haut-Orinoque" collected in 1887. The spores measure 17–18 x 7–8 u, and looks to be the same as our Colombian material. The host also looks like *Guadua latifolia*.

Differs from *Ph. gracilis* Speg., reported on a Bambusaceæ from Peribebuy, Brasil, in having slightly smaller spores and very conspicuous linear stromata over twice as long.

On *Guadua latifolia* Kunth.

ANTIOQUIA: Quebrada Sinifaná, No. *93*, May 15, 1926.

EL VALLE: Hacienda El Hatico, between Cerrito and Palmira, No. *346*, May 23, 1929.

*108. **Phyllachora tequendamensis** Chardon sp. nov.

Stromata amphigenous, not shiny, small, .5–1.0 mm. long x .3–.5 mm. wide, equally visible from both surfaces of the leaf, uniloculate or very seldom biloculate; locules globose to ellipsoidal, small,

100–150 x 80–100 u, surrounded on all sides by the black stroma, immersed in the mesophyll; asci cylindrical-clavate, 65–75 x 12–14 u, 8-spored, with the spores biseriate; spores fusoid with acute ends, smooth, hyaline, 1-celled, 14–17 x 6–6.5 u; paraphyses present.

This species is closely related to *Ph. microstroma* Chardon and the stromatic characters are very similar, but the spores are larger. In the former species they are 10–12 x 4–5 u.

On undetermined sp. of Gramineæ.

CUNDINAMARCA: Wet weadows just above Salto de Tequendama, No. *671*, July 6, 1929 (type).

PHYLLACHORA SCLERIAE Rehm, Hedwigia **39**: 232. 1900.*

A common species in the American tropics. Our material is mostly sterile but a few spores, 18 x 5 u were seen, enough to make the determination of the species.

On *Scleria* sp.

PANAMÁ: Road to Pacora, E. of Panamá City, No. *188*, Apr. 28, 1929.

109. PHYLLACHORA AMBROSIAE (B. & C.) Sacc., Syll. Fung. **2**: 601. 1883.

A common species in the Central Andes, previously reported by Sydow (**31**) and also by Chardon (**4**). It is widely distributed in the United States and is also known to occur in Brasil and Argentina.

On *Ambrosia peruviana* Willd.

TOLIMA: Outskirts of Ibagué, No *533*, June 20, 1929.

*110. PHYLLACHORA GALACTIAE Earle; Seaver in Britton, Bahama Flora :633. 1920.

A rather common species, which agrees very well with material from Porto Rico. Spores 20–21 x 5 u. (Fig. 9.)

On *Galactia striata* (Jacq.) Urban.

EL VALLE: Dry thickets near San Pedro, N. of Buga, No. *416*, June 4, 1929; along river at Buga, No. *431*, June 5, 1929.

TOLIMA: Ravines along road near Ibagué, No. *577*, June 20, 1929.

CUNDINAMARCA: Along Funza River, trail to Hacienda San Antonio, No. *683*, July 11, 1929.

*111. **Phyllachora Ospinae** Chardon sp. nov.

Stromata amphigenous, black, shiny, conspicuous, equally visible on both surfaces of the leaf, approximately circular, 1.0 to 2.0 mm. in diameter; locules several, large, usually 2 or 3, 300–400 x 170–200

* See note on page 245.

u, completely immersed in the mesophyll and surrounded on all sides by the black stroma; asci cylindrical-clavate, 90–120 x 12–15 u, 8-spored with the spores mostly uniseriate: spores 1-celled, ovoid, 12–14 x 8–10 u, granular and very faintly opaque; paraphyses present. (Fig. 9.)

This is evidently different in stromatal and spore characters from *Ph. Galactiæ* Earle. The spores are faintly opaque but the species is retained temporarily as a *Phyllachora*. Named in honor of General Mariano Ospina, President of the "Federación Nacional de Cafeteros", who accompanied us to Tequendama Falls.

On *Galactia striata* (Jacq.) Urban.

CUNDINAMARCA: Along slopes of Salto de Tequendama, No. *659*, July 6, 1929 (type).

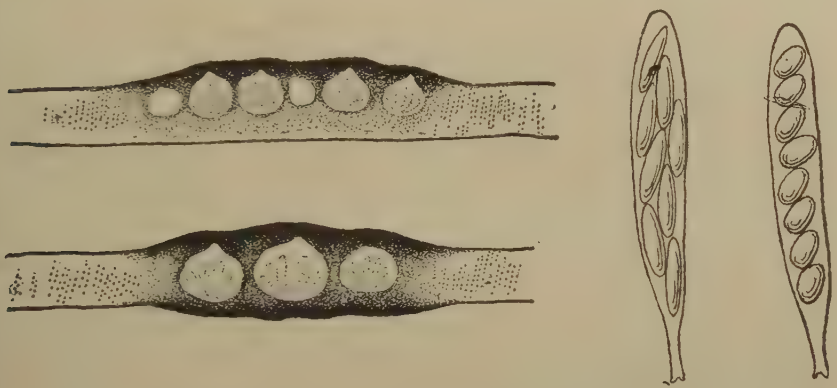

FIG. 9.—UPPER LEAF—PHYLLACHORA GALACTIAE EARLE
LOWER LEAF—PH. OSPINAE SP. NOV.
LEFT ASCUS—PH. OSPINAE SP. NOV.
RIGHT ASCUS—PH. GALACTIAE EARLE

*112. PHYLLACHORA TRAGIAE (B. & C.) Sacc. Syll. Fung. **2**: 601. 1883.

On *Croton gossypifolius* Vahl.

EL VALLE: Finca Las Cañas, S. of Jamundi, No. *279*, May 15, 1929; near Toro, No. *535*, June 12, 1929.
TOLIMA: Outskirts of Ibagué, No. *552 a*, June 20, 1929.

*113. PHYLLACHORA LITSEAE Koord., Verh. Kon. Akad. Amsterdam, II Sect., Deel. 13. 1907.

The determination of this species, from Java, is not based on comparison with type, but it matches well with a specimen from Panamá

(Stevens No. *1017*) and determined as such by Stevens (Ill. Biol. Monog. **11**: 36). The spores are 14–17 x 4–5 u.

On *Nectandra glabrescens.*

TOLIMA: Ravines along road near Ibagué, No. *559*, June 20, 1929.

*114. PHYLLACHORA PHASEOLI (P. Henn.) Theiss & Sydow, Ann. Mycol. **13**: 507. 1915.

Physalospora Phaseoli P. Henn., Hedwigia **43**: 368. 1904.

Hyponectria Phaseoli Stevens, Bot. Gaz. **70**: 401. 1920.

A conspicuous species characterized by many small, black, punctiform stromata. Spores 10–12 x 8–9 u, usually biseriate.

On *Phaseolus* sp.

ANTIOQUIA: Salgar, Western Andes (Coll R. A. Toro), No. *364*, July 20, 1928.

*115. **Phyllachora Ruelliae** Chardon sp. nov.

Stromata amphigenous, small, approximately circular, about 1 mm. in diam., black, shiny and fairly conspicuous in the epiphyll, dirty black and less visible in the hypophyll; locules 2–3, globose to angular through lateral pressure, 150–200 x 130–165 u, completely immersed in the mesophyll and surrounded on all sides by thick black stromatic tissue; asci cylindrical-clavate, 8-spored, 85–100 x 7–9 u with the spores obliquely uniseriate; spores 1-celled, hyaline to faintly bluish, long elliptical usually tapering at one end, smooth, 22–24 x 5–6 u; paraphyses present.

No species of *Phyllachora* has been reported on this genus, so it is described here as new.

On *Ruellia* sp.

ANTIOQUIA: Fredonia, No. *311* (Coll. by R. A. Toro), Dec. 20, 1927 (type).

*116. PHYLLACHORA TARUMA Speg. Anal. Soc. Ci. Argent. **19**: 94. 1886.

Our material agrees very well with collections from Porto Rico on *Vitex divaricata* and a specimen furnished by the late Dr. C. Spegazzini on *Vitex* (Taruma) from Paraguay.

On *Vitex* sp.

HUILA: Natagaima, Phan. Herb. N. Y. Bot. Garden, No. *260*, (Coll. H. H. Rusby & F. W. Pennell), July 22, 1917.

117. PHYLLACHORA GRATISSIMA Rehm., Hedw. **31**: 306. 1892.

This is a common species in the Andes of Equador and Colombia and is also known from the West Indies. Several collections

were reported by Chardon (3) from Antioquia. A collection is reported here representing a new locality.

On *Persea gratissima* L.

NARIÑO: Union, no number (Coll. by L. Pardo Navarro), Feb. 1930.

*118. **Phyllachora microtheles** (Speg.) comb. nov.

Puiggarina microtheles Speg., Bol. Acad. Nac. Ci. Cordoba **23**: 125. 1919.

Spegazzini (l. c., 123) created the genus *Puiggarina* to include all those forms of *Phyllachora* possessing uniloculate stromata. The generic standing of the new genus, being rather doubtful, the species is referred to *Phyllachora* as a new combination. A beautiful species, spores 12 x 5 u, comparing very well with Spegazzini (loc. cit.) fig. 335. This is the second collection made of this species, which was only known to occur near Apiahy, Brazil.

On *Chaptalia nutans* (L.) Polak.

TOLIMA: Ravines along road near Ibagué, No. *561*, June 20, 1929.

119. PHYLLACHORA ULEI Winter, Grevillea **15**: 90.

Forming very conspicuous, black shiny, round stromata 2–5 mm. in diameter. Also known from Brazil, Panamá, Costa Rica and Porto Rico.

On undetermined *Dioscoria* sp.

ANTIOQUIA: Near Angelópolis, No. *318* (Coll. R. A. Toro), Jan. 22, 1927; near Fredonia, No. *329* (Coll. R. A. Toro), July 31, 1927.

*120. PHYLLACHORA INSUETA Sydow, Ann. Mycol. **23**: 373. 1925.

This has been compared with a portion of the type material, Sydow's Fung. exot. exsic. *662*, on *Serjania caracasana* Wild. from Grecia, Costa Rica. The macroscopic appearance is not dothideaceous, but sphaeriaceous, due to the fact that the major portion of the stroma is endophyllous and only the beaks of the locules appear on the surface as minute black dots, like in many parasitic Sphaeriales. Spores long-elliptical, 13–16 x 4–5 u. (Fig. 10.)

On *Serjania paniculata* H. B. K.

TOLIMA: Ravines along road near Ibagué, No. *564*, June 20, 1929.

On *Serjania membranacea* Sphlg. ("close to" according H. A. Gleason).

CUNDINAMARCA: Along Funza River, trail to Hacienda San Antonio, No. *688*, July 11–12, 1929.

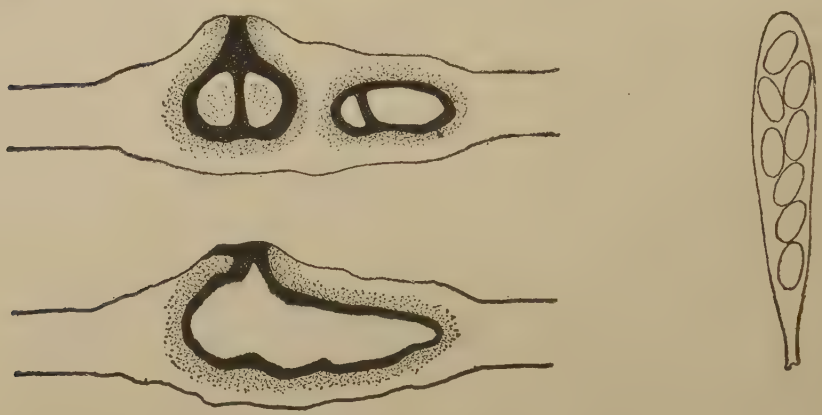

FIG. 10.—PHYLLACHORA INSUETA SYDOW

121. PHYLLACHORA PERLATA Sydow, Mem. Soc. Neuch. Sci. Nat. **5**: 436. 1914.

Two independent and abundant collections of this species were made, which was previously known from a single collection made by Mayor (No. *343*) and with which our specimens have been compared. Spores uniseriate, ellipsoidal to ovate, 14–16 x 8–12 u.

On *Polymnia eurylepis* Blake. (Plate XXXV, A.)

CUNDINAMARCA: Ravine between Cerro Monserrate and Guadalupe above Bogotá, No. *613*, June 25, 1929.

On *Polymnia* sp.

ANTIOQUIA: Salgar, Western Andes, No. *358* (Coll. R. A. Toro), July 20, 1928.

*122. PHYLLACHORA AEQUATORIENSIS Theiss. & Sydow, Ann. Mycol. **13**: 521. 1915.

Ph. dendritica Rehm, Hedwigia **31**: 305. 1892.

This is a beautiful and conspicuous species, previously reported from Ecuador by Rehm (Ascom. No. *1072*) on the same host. Spores are elliptical to ovate, a little larger than the original diagnosis, 10–14 x 7–10 u. It compares well with a specimen in the Bureau of Plant Industry, collected by F. L. Stevens (No. *281*) in Ecuador on *Monnina salicifolia* and labelled *Ph. aequatoriensis* Th. & Syd. The type material from Ecuador has been examined at the New York Botanical Garden.

On *Monnina* sp.

El Valle: Hacienda Bitaco, Cordillera Occidental, No. *489*, July 11, 1929.

Cundinamarca: Slopes at Salto de Tequendama, No. *658*, July 6, 1929.

***123. Phyllachora Toroi** Chardon sp. nov.

Stromata amphigenous, black, shiny, circular, 1–1.5 mm. in diameter, concave and more pronounced in the under-surface, slightly less so in the upper surface, embedded in the mesophyll; locules single or double, ovate or elliptical, large, 250–350 x 170–200 u, completely surrounded by the black stroma; asci cylindrical, 8-spored, 90–105 x 12–14 u, with the spores obliquely uniseriate; ascospores

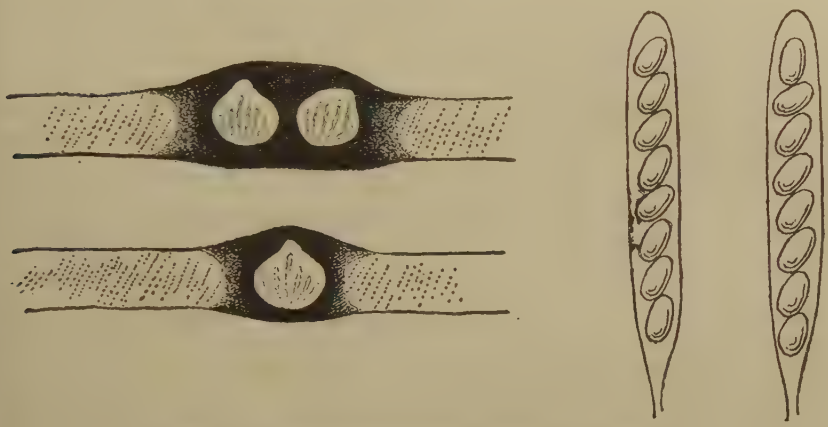

FIG. 11.—PHYLLACHORA TOROI SP. NOV.

1-celled, hyaline, elliptical smooth, 10–16 x 9–10 u, granular inside; stylospores spindleform 18–20 x .5 u; paraphyses present. (Plate XXXV, D and fig. 11.)

Phyllachora Cestri Pat. (Bull. Soc. Myc. Fr. 7: 176) reported on *Cestrum* from Quito, Ecuador, has spores irregularly biseriate in the ascus, 20–23 x 7–9 u. Its stromatal characters are also different from our species, which is apparently new.

Dedicated to my collaborator Mr. R. A. Toro, who during the past three years, has made important phanerogamic and mycological collections in Colombia.

On *Cestrum parviflorum* Duval.

Boyacá: Duitama, No. *404* (Coll. R. A. Toro), Feb. 20, 1929 (type).

CUNDINAMARCA: Near Bogotá, Phan. Herb. N. Y. Bot. Garden No. *2349*, (Coll. F. W. Pennell) Oct. 4–8, 1917; Chapinero, Sabana de Bogotá, No. *553*, (Coll. R. A. Toro) Sept. 18, 1929.

*124. **Phyllachora Guazumae** P. Henn. chart. emend.
Phyllachora? Guazumae P. Henn. Hedwigia **48**: 7. 1908.
Trabutia Guazumae Chardon, Mycologia **13**: 291. 1921.

Stromata epiphyllous, numerous, black, shining, approximately circular, distinctly convex, 1–2 mm. in diameter, in rare cases 3 mm. across, surrounded by a discolored zone of dead host tissue; locules many, generally 3–5, globose, 200–300 u, immersed in the mesophyll of the leaf, bordered on the top by a heavy black stroma, and on the sides and below by faint stromatic tissue; asci subcylindrical-clavate, 63–85 x 13–15 u, 8–spored, with the spores uniseriate, or more commonly, biseriate; spores long-elliptical, 1–celled, hyaline, 18–20 x 4–5 u, with guttulate contents; paraphyses present.

The senior writer (**2**) in 1921, collected specimens of this species in Porto Rico, which he named *Trabutia Guazumae* sp. nov., although he admitted that "this form is probably coespecific with *Phyllachora Guazumae.*" Henning's description is incomplete, and since it seems that both the Porto Rican and the Colombian material belong together, an amended description of the species is made here. It falls under *Phyllachora* more properly than in *Trabutia*. The species has also been collected in Panamá, Cuba and Santo Domingo.

A specimen has been seen at the herbarium Bureau of Plant Industry which macroscopically looks identical with this species. It is labelled *Dothidea rhytismoides* B. & C., coll. C. Wright, presumably from Nicaragua (?) on leaves which look like *Guazuma*. The material is very old (1853–56) and did not show spores.

On *Guazuma ulmifolia* Lam.

EL VALLE: Dry thickets near San Pedro, N. of Buga, No. *419*, June 4, 1929.

*125. **Phyllachora vallecaucana** Chardon sp. nov.

Stromata amphigenous, black, not shiny, conspicuous, equally visible on both surfaces, some of them approximately circular, others angular and irregular, 1–2 mm. across; locules several, 2–5 in each stroma, lenticular or slightly angular thru lateral pressure, completely immersed in the mesophyll and surrounded on all sides by the black stroma, 170–250 x 150–180 u; asci cylindrical-clavate, 75–95 x 10–12 u, 8–spored with the spores obliquely uniseriate; spores 1–celled, hyaline, ovate, smooth, 8–10 x 4–5 u; paraphyses present. (Plate XXXV, E and fig. 12.)

There being no Phyllachoraceæ reported on the host genus, the species is considered new.

On *Buettneria* sp.

El Valle: In forests at Hacienda Riopailla, S. of Zarzal, No. *381*, May 31, 1929 (type).

*126. **Sphaerodothis columbiensis** Chardon sp. nov.

Stromata amphigenous, black, not shiny but conspicuous, equally visible from both surfaces of the leaf, 1.0–1.5 mm. long, and 0.7 to 1.0 mm. wide, the longer dimension parallel to the main axis of the leaf, sometimes coalescing and reaching a length of 2–3 mm.; locules generally 2 or 3 in the stroma, which covers them on all sides and

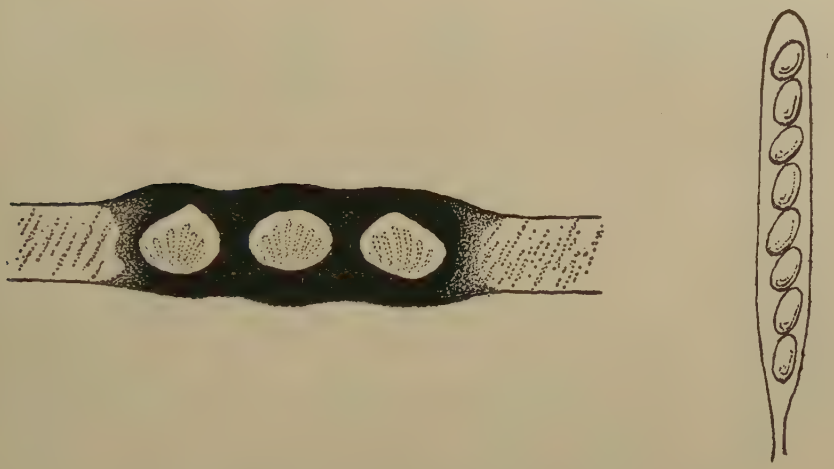

FIG. 12.—PHYLLACHORA VALLECAUCANA SP. NOV.

is immersed in the mesophyll of the leaf; locules long ellipsoidal, flattened or even irregular, large, 150–320 x 120–170 u; asci cylindrical to cylindrical-clavate or clavate, depending on the arrangement of the spores, which may be uniseriate, partially biseriate or even inordinate, 75–92 x 15–18, 8-spored; spores elliptical with blunt ends, 1-celled, light brown in color, 15–18 x 7–8 u; paraphyses present. (Plate XXXIV, fig. E.)

A very distinct form, there being no species of *Sphaerodothis* previously reported on *Pennisetum*.

On *Pennisetum bambusiforme* (Four.) Hemsl.

Caldas: Ravines near Calarcá, Ibagué-Armenia road, No. *705*, July 13, 1929 (type).

CUNDINAMARCA: Along road beyond Salto de Tequendama, No. *676*, July 7, 1929.

127. SPHAERODOTHIS ANTIOQUENSIS Chardon, Jour. Dept. Agric. Porto Rico **13**: 13. 1929.

The host of this species was erroneously reported at *Arthrostylidium*, while a new host determination by Dr. A. S. Hitchcock is given here.

On *Chelonanthus acutangulus* (R. O. P.) Gilg.

ANTIOQUIA: Santiago, No. *284* (Coll. R. A. Toro) Nov. 13, 1927.

128. PHRAGMOCARPELLA PUIGGARI (Speg.) Theïss. & Syd., Ann. Mycol **13**: 602. 1915.

Montagnella? Puiggari Speg. Fungi Puigg. No. 530.

The stromata are very minute, amphigenous, 2–3 loculate, *Phyllachora*-like; asci 60–70 x 6–8 u, 8–spored, with the spores biseriate: spores fusoid, 3–septate and 4–guttulate, hyaline, 15–17 x 4–4.5, paraphyses absent.

Spegazzini's type has not been seen but its description fits very well our material. It is known from Apiahy, Brazil on *Oplismenus* sp., and has been reported from Costa Rica by Stevens (Ill. Biol. Monog. **11**, No. 2: 44) on *Opl. burmanni*. Dr. Eug. Mayor made a collection (No. *221*) along the road from Medellín to Bello, Antioquia, on *Opl. setarius* (Lam.) R. S., which Sydow (**31**) has already referred to this species, so our collection is the second known from Colombia.

On *Panicum laxum* Swartz.

EL VALLE: Near Buenaventura, No. *218*, May 8, 1929.

*129. **Homostegia Ischaemi** Chardon sp. nov.

Stromata amphigenous, black, not shiny, scattered, very conspicuous in the upper surface of the leaf, much less so in the undersurface, round, about .7–1.0 mm. in diam., immersed in the mesophyll; locules generally 2–3, large, 200–300 x 80–120 u, bordered by black a stroma on the upper portion and slightly so along the sides and bottom; asci cylindrical-clavate, numerous, 54–65 x 10–12 u, 8–spored, with the spores biseriate; spores at first 2–celled, hyaline, with granular contents, long-elliptical, 12–14 x 3–4 u, at maturity becoming 4–celled, distinctly brown, 15–18 x 3–4 u; paraphyses present.

A rare and distinct form.

On *Ischaemum latifolium* (Spr.) Kunth.

EL VALLE: Near Buenaventura, No. *214*, May 8, 1929 (type).

Order IX.—FIMETARIALES.

Family I. Chaetomiaceae

*130. Chaetomium globosum Kunze & Schm., Myk. Hefte 1:15. 1817.

On wet paper.

Cundinamarca: Bogotá, No. *563* (R. A. Toro), March 20, 1930.

Order X.—SPHAERIALES.

(Carlos E. Chardon)

Family I. Mycosphaerellaceae

131. Mycosphaerella Drymariae Sydow, Mem. Soc. Neuch. Sci. Nat. 5:435.

The specimen is referred here, although the material is not fully ripe, and the type material has not been examined. Perithecia hypophyllous, globose, small, 60–70u in diameter. Known from a single collection by Mayor (No. *260*), on the same host, from Antioquia.

On *Drymaria cordata* (L.) Willd.

El Valle: College N. S. de los Andes, Cordillera Occidental, No. *460*, June 10, 1929.

*132. **Sphaerulina ferruginosa** Chardon & Toro sp. nov.

Spots several in each leaf, yellowish on the upper surface, dark on the lower, somewhat irregular, center raised, black in hypophyllous spots, 0.25–1 mm. in diameter, margin cream; perithecia single or several in the spot, hypophyllous, black, globose, composed of short, septate, an astomosing, dark brown hyphae, 2–3 u thick, sometimes confluent, immersed at first, later errumpent, sub-epidermal, 110–115 x 110–132 u in diameter; superficial mycelium none; internal mycelium septate, intercellular, hyaline; ostiolum short, papillate, 20–30 u wide; asci fascicuate, clavate, slightly curved or straight, short pedicellate, thick-walled, dehiscing by a pore 8-spored, 80–85 x 16–20 u; spores inordinate or biseriate 5–7 septate, thick-walled, not constricted, hyaline 19–22 x 7–8 u; paraphyses none.

The species resembles *Sphaerulina microthyrioides* Rehm in the general character of the perithecia, but differs from it in having larger asci, of different shape, and in the absence of paraphyses. From S. *subtropica* Speg. in the septation of the spores and size of perithecia, asci and spores. No. *641* is heavily parasitized an undetermined Hypocreaceous fungus.

On *Chusquea scandens* Kunth.

CUNDINAMARCA: Ravines between Cerro Monserrate and Guadalupe, above Bogotá, No. *603,* June 25, 1929. (type); slopes of Salto de Tequendama, No. *641,* July 6, 1929.

Family 2. PLEOSPORACEAE

133. LEPTOSPHAERIA SACCHARI van Breda de Haan, Meded. Proef. Suik. West–Java 1892: 5. 1892.

On *Saccharum officinarum* L.

Widespread in all the sugar producing countries of the world as causing the "ring-spot" disease of the leaves.

PANAMÁ: Plant Introduction Garden, Summit, Canal Zone, No. *189,* Apr. 29, 1929.

EL VALLE: Near Rozzo, N. W. of Palmira, (coll. J. A. B. Nolla) No. *394,* May 31, 1929.

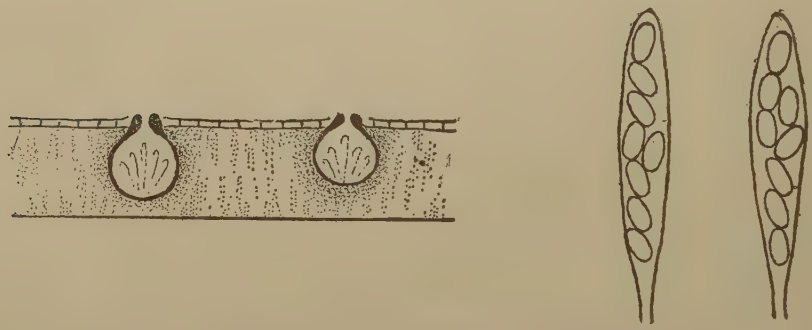

FIG. 13.—CLYPEOTRABUTIA MONTSERRATIS SP. NOV.

PHYSALOSPORA ANDIRAE Stevens, Trans. Ill. Acad. Sci. **10**: 184. 1917.

On *Andira inermis* H. B. K.*

Previously known from Porto Rico and Santo Domingo.

PANAMÁ: Finca La Isleta, 5mi. E. of Panamá City, No. *179,* Apr. 28, 1929; Ravine near Capira, No. *206,* Apr. 30, 1929.

Family 3. GNOMONIACEAE

134. GNOMONIA OSPINAE Chardon, Bol. Real Soc. Esp. Hist. Nat. **28**: 120. 1928.

On *Tecoma spectabilis* Planch.

This is the second collection recorded of this species.

ANTIOQUIA: Medellín, No. *198* (coll. R. A. Toro) Apr. 4, 1927.

* See note on page 245.

Family 4. Clypeosphaeriaceae

*135. **Clypeotrabutia montserratis** Chardon sp. nov.

Spots approximately circular, 3–5 mm. in diameter, yellowish with definite borders, epiphyllous, spotted with many (20–50) minute black dots which are the clypei of the perithecial necks; perithecia globose, single, 200–250 x 150–200 u, possessing true perithecial walls, entirely immersed in the leaf tissues; ostiole central, opening and slightly protruding in the epiphyll, bordered by a conspicuous, black clypeus; asci cylindrical-clavate, 8–spored, 90–100 x 14–16 u, with the biseriate in the main body of the ascus; spores 1–celled, hyaline, elliptical, smooth, 10–12 x 5–6 u; paraphyses present. (Plate XXXV, C and fig. 13.)

Seaver and Chardon (**22**) erected the genus *Clypeotrabutia* to take care of the 1–celled, hyaline-spore forms of the family Clypeosphaeriaceae, of the Sphaeriales. In Engler und Prantl's keys for the family, such forms were received under *Trabutia* Sacc. & Roum. but this genus has been transferred by Theissen und Sydow (**36**) to the Phyllachoraceae of the Dothideales.

The species clearly falls under *Clypeotrabutia,* with the conspicuous black clypeus around the ostiolum as a distinctive character.

On *Parseola coerula* (L. f.) Macbr.

Cundinamarca: Ravine between Cerro Monserrate and Guadalupe, above Bogotá, No. *597,* June 25, 1929. (type).

*136. **Clypeotrabutia medellinensis** Chardon sp. nov.

Spots approximately circular, 5–8 mm. in diameter, faintly discolored and inconspicuous in the epipyll, slightly more so in the hypophyll where a large number of small, punctiform, convex perithecia may be seen, with the black clypei clearly visible; perithecia globose or slightly flattened, 180–210 x 130–165 u in diam., possessing true perithecial walls, completely immersed in the mesophyll, greatly convex in the hypophyll where the ostiole is found surrounded by a distinct clypeus of stromatic tissue; asci cylindrical-clavate, 8–spored, 80–90 x 13–14 u, with the spores biseriate in the main body of the ascus; spores 1–celled, faintly bluish to hyaline, long elliptical, tapering at one end, 24–26 x 6–7 u, smooth; paraphyses present.

A beautiful species with the hand lens showing many densely packed punctiform perithecia in the undersurface of the leaf.

On *Trichanthera gigantea* (H. B. K.) Nees.

Antioquia: Near Medellín, No. *188,* (coll. by R. A. Toro), June 3, 1927 (type); Medellín, No. *283* (col. by R. A. Toro), Oct. 15, 1927.

DIATRACTIUM CORDIAE (Stevens) Sydow, Ann. Mycol. **18**: 183. 1920.
Trabutiella Cordiae Stevens, Bot. Gaz. **70**: 401. 1920.
On *Cordia glabra* L.
Previously known only from Porto Rico.
PANAMÁ: Along road, 8mi. E. of Panamá City, No. *180*, Apr. 28, 1929.

Endotrabutia Chardon gen. nov.

Perithecia entirely immersed in the host tissue, never protruding, provided with true perithecial wall, bordered at the top with a clearly marked clypeus formed of black, stromatic tissue: asci cylindrical-clavate, 8–spored; spores 1–celled, brown, provided with a conspicuous gelatine envelope; paraphyses present.

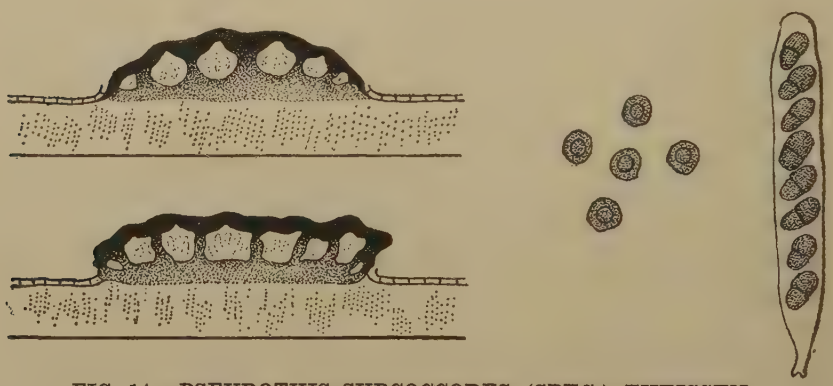

FIG. 14.—PSEUDOTHIS SUBCOCCODES (SPEG.) THEISSEN
(Cross sections of leaf, conidia and an ascus)

Type species: *Endotrabutia tequendamensis* sp. nov.

This new genus falls in the true Clypeosphaeriaceae, due to its well defined clypeus bordering the upper portion of the perithecium. Its strictly endogenous nature, however, is unique, and separates it from its closes relative *Anthostomella* Sacc., which takes care of all the 1–celled, brown spored species of that family. The characteristic gelatine envelope of the spores suggest the Massariaceae, but in this family, the perithecia are carbonous or thick coriaceous. The erection of this genus seems justifiable at present.

*137. **Endotrabutia tequendamensis** Chardon sp. nov.

Spots amphigenous, punctiform, black, less than 1 mm. in diameter, with the long axis parallel to length of leaf, crowded in colonies (20–30); perithecia entirely immersed in the host tissue, provided with walls, angular and even quadrilateral in shape,

175–280 x 130–165 u, provided with a characteristic black clypous which connects the perithecium with the upper and lower epidermis; asci cylindrical-clavate, 8–spored, with the spores biseriate in the main body of the ascus: spores large, 1–celled, yellowish brown, 25–28 x 9–10 u, surrounded by a hyaline gelatinous envelope, 1.5–2 u thick; paraphyses present.

On *Cortaderia radiuscula* Stopf.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *642*, July 6, 1929. (Type).

*138. PSEUDOTHIS SUBCOCCODES (Speg.) Theiss., Anal. Mycol. **16**: 182. 1918.

Rousoella subcoccodes Speg. Fung. Puig. **1**: 549.
Munkiella pulchella Speg. Syll. Fung. **9**: 1035.
Dothidella Machaerii Rehm., Hedwigia **36**: 377. 1897.
Cocconia Machaerii P. Henn., Hedwigia **41**: 112. 1902.
Dothidea machaeriophila P. Henn., Hedwigia **43**: 256. 1904.
Dothidella machaeriophila Sacc., Syll. Fung. **17**: 847.

The nomenclature of this interesting species is somewhat confusing. At first the writers thought his was a *Systremma*, but the specimen was sent to Dr. H. Sydow, who based on the paper of Theissen (**38**) determined it as *Pseudothis machaeriophila* (P. Henn.) Th. Later, an examination at the N. Y. Botanical Garden of Rabenhorst-Winter No. 3460, labelled *Munkiella pulchella* Speg. from Sao Francisco, Brazil (coll. E. Ule in 1885) proved to be the same fungus. In Theissen and Sydow (**36**), *Munkiella pulchella* is considered as a synonym of *Rousoella subcoccodes* Speg. (Fig. 14.)

On *Machaerium angustifolium* Vogel.

ANTIOQUIA: Near Salgar, Western Andes, No. *359* (coll. R. A. Toro), July 20, 1928.

Family 4.—XYLARIACEAE.

J. H. MILLER *

The Xylariaceae of Colombia are very imperfectly known, and only about twenty species have been reported by various previous investigators. The present study of the collections made by C. E. Chardon and R. A. Toro representing 18 species has been interesting, and has resulted in reporting 13 species new to the flora and

* Contribution from the Department of Botany, University of Georgia.

one new combination. The genus *Rosellinia* is included in the family as a result of the author's previous work (**18**).

*139. ROSELLINIA BUNODES (B. & Br.) Sacc., Syll. Fung. **1**: 254. 1882.

Both stages of the *Rosellinia* were found. The perfect stage, No. *522*, was overripe and did not show spores, but the large, black, warty perithecia were typical. The determination of the species was made by C. E. Chardon who reports that the fungus was associated with a coffee root disease causing considerable damages in the plantations at Bitaco, Pavas and la Cumbre.

On base of stem and roots of *Coffea arabica* L.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *504* (*Dematophora* stage), and No. *522* (perfect stage), June 11, 1929.

*140. ROSELLINIA DESMAZIERII (B. & Br.) Sacc. var. ACUTISPORA Theiss., Ann. Mycol. **6**: 350. 1908.

The specimen is old but agrees very well with Theissen's type. The type of subiculum found here is quite similar to that found in *R. aquila* (Fr.) de Not., but the perithecia are much larger.

On dead wood.

ANTIOQUIA: near Salgar, Western Andes, No.—— (coll. R. A. Toro), 1927.

*141. HYPOXYLON CHUSQUEAE P. Henn., Hedw. **39**: 138. 1900.

This fungus was first determined by the writer as *H. cohaerens* (P.) Fr. and reported as such by Chardon (**4**). Lately, a second examination has been made: the ascospores measure 11–15 x 5–7 u. The external appearance of this specimen is very similar to *H. cohaerens*, but the ascospores are much larger. *H. Chusqueae* as described by Theissen (**33**) is similar to this specimen, but it is white inside.

On dead bark of fallen tree.

ANTIOQUIA: Ravine at finca Sorrento, near El Poblado, No. *47*, May 16, 1926.

*142. HYPOXYLON MULTIFORME Fr., Summ. Veg. Scand. 384. 1849.

Ascospores 9–10.5 x 3.5–5 u. This is typical of the effused form found in North America and Europe. It resembles a form of *H. rubiginosum*, but the papillate ostiola rule that species out.

On dead wood.

EL VALLE: Hacienda El Hatico, between Cerrito and Palmira, No. *363*, May 23, 1929.

143. Hypoxylon marginatum (Schw.) Berk., Grevillea **4**: 49. 1875.

Sphaeria marginata Schw. Syn. North Amer. F. No. 1176. 1832.

Ascospores 9–10 x 3.5–5 u. This form of *H. marginatum* has been called *H. annulatum*, but Dr. Shear (**23**) says, "*H. annulatum* (Schw.) Curt. equals an effuse form of *H. marginatum* (Schw.) Berk." This species was first reported from Colombia by Leveille (**14**).

On dead wood.

Tolima: El Boquerón W. of Ibague along Armenia Road, No. *699*, July 14, 1929.

144. Hypoxylon serpens Pers. Fr., Summa Veg. Scand. 384. 1849.

Sphaeria serpens Pers. Syn. F. 20. 1801.

Ascospores 12 x 6 u. This specimen is very close to *H. colliculosum* (Schw.) Nits., but the specimen at Kew and also the Morgan specimen under that name approach *H. serpens* so closely that I believe the two names are synonymous. This species was also reported from Colombia by Leveille (**14**).

On dead wood.

Caldas: Along Quindio R. near Armenia, No. *727*, July 14, 1929.

*145. **Hypoxylon rubigineo-areolatum** Rehm. var. **Bakeri** (Earle) comb. nov.

Hypoxylon Bakeri Earle, Bull. Torr. Bot. Club **26**: 633. 1899.

Hyp. rubigineo-areolatum Rehm var. *microspora* Theiss., Ann. Mycol. **6**: 345. 1908.

The name going with the earlier date (1899) should be used. This form is close to *H. multiforme* Fr. from which it differs in the smaller perithecia and slightly larger spores. The areolate character surrounding each ostiolar neck is seen only in specimens with very compact perithecia.

On dead branch.

Magdalena: Near Bonda (coll. C. F. Baker) Dec. 1898 (specimen at N. Y. Bot. Garden).

*146. Nummularia commixta Rehm., Hedwigia **44**: 6. 1905.

A few spores were found which would place this specimen in *N. Pezizoidea* P. Henn. rather than *N. commixta*, but Dr. Diehl determines it as *N. commixta* and says it agrees with the Theissen f. brasil No. *112* and Rick's F. Austro-Amer. No. *309*; however, as he found no ascospores this specimen cannot be determined accurately.

On dead wood.

El Valle: Hacienda El Hatico between Cerrito and Palmira, No. *364*, May 23, 1929.

Nummularia Bulliardi Tul., Sel. Carp. **2**: 43. 1863.

This species according to Miller is *H. nummularium* Bull. since he places the species under the name of *Nummularia* back in *Hypoxylon*. Spores 10–12 x 5–6 u.

On dead wood.

Panamá: Barro Colorado Island, No. *194*, April 29, 1929.

147. Daldinia concentrica (Bolt.) es. & de Not., Comm. Critt. Ital. **1**: 198. 1863.

On dead wood.

El Valle: Hacienda Riopaila, S. of Zarzal, No. *393*, May 31, 1929; Finca El Hatico, between Cerrito and Palmira, No. *732*, May 22, 1929: Forests near San Pedro, N. of Buga, No. *737*, June 4, 1929.

148. Poronia cedipus Mont., Syll. Crypt. 209. 1856.

On horse dung.

El Valle: Vicinity of Cali, No. *730*, May 18, 1929.

*149. Camillea cyclops Mont., Syll. Crypt. No. *705* & Cent. *2*, No. 41. 1856.

Only two previous collections of this species are known according to Lloyd (**16**): one from the Leprieur collection from French Guiana, and another collected by Rev. Torrend from Brasil. (Plate XXXV, F.)

On bark of fallen tree.

El Valle: Coffee grove near R. R. Station at Bitaco, Cordillera Occidental, No. *937*, June, 11, 1929. (det. by W. H. Diehl).

*150. Camillea globosa (Lev.) Lloyd, Myc. Notes: 8–9. 1917.

Phylacia globosa Lev. Ann. Sci. Nat. III, **3**: 61–62. 1845.

It is with some hesitancy that the specimen is referred here. Lloyd says that Leveille's specimen came from Tolima, Colombia. *Camillea poculiformis* (Kunze) which is figured by Lloyd appears to be a stipitate form of *C. globosa*, but in our specimen, plants with and without stipes are found. (Plate XXXV, B.)

On bark of fallen tree.

El Valle: Coffee grove near R. R. Station at Bitaco, Cordillera Occidental No. *740*, June 11, 1929.

*151. XYLARIA COMOSA Mont., Syll. Crypt. No. 696 and Cent. 2, No. 30. 1856.

According to Theissen this is a very common species in South America. There are no ascospores, but at the apex of the conidial stroma the *Isaria* growth is a form commonly found on this species. See Ann. Myc. **7**: tab. 8, Fig. 1, 1909.

On dead wood.

SANTANDER: Along banks of Magdalena river, across Puerto Berrío, No. 132, June 15, 1926.

*152. XYLARIA HYPOXYLON (L.) Grev. Fl. Edin. 355. 1824.

Clavaria hypoxylon L. Sp. Pl. 1182. 1753.

The branched stroma, puberulent base, and ascospores (12–15 x 5–7 u) places this definitely.

On dead wood.

SANTANDER: Magdalena River near Puerto Wilches, No. *155*, 1926.

*153. XYLARIA RHIZOCOLA Mont., Syll. Crypt. No. *684* and Cent. *2*, No. *28*. 1856.

This specimen was incorrectly determined and reported by Chardon (**4**) as *X. polymorpha* (P.) Grev. I find no ascospores and his determination was evidently based on the conidial stage which is not *X. polymorpha* but resembles tab. 6, fig. 1 of Theissen's Xylariaceae austro-brasiliensis—II.

On living roots of *Coffea arabica* L.

ANTIOQUIA: Cafetal Los Micos, near Titiribi, No. *35*, May 13, 1926.

*154. XYLARIA RICKII Theiss. Ann. Myc. **6**: 342. 1908.

On dead wood.

EL VALLE: Forest at Hacienda Bitaco at Cordillera Occidental, No. *469*, June 11, 1929.

*155. XYLARIA SCOPIFORMIS Mont. Ann. Sci. Nat. **13**: 349. 1840.

According to Miller, this specimen agrees with Porto Rico No. *949*, collected by C. E. Chardon and determined by C. G. Lloyd. Theissen, in Xylariae austro-brasiliensis I, P. 9, makes this species a form under X. *hypoxylon* (L.) Grev.

On dead wood.

EL VALLE: Bamboo forest near San Pedro, No. *406*, June 4, 1929.

FUNGI IMPERFECTI

(Carlos E. Chardon and Rafael A. Toro)

Order I.—SPHAEROPSIDALES

Family 1. Shaerioidaceae

*156. Actinonema Rosae (Lib.) Fries, Suma Veg. Scand. **1849**. 424.

Asteroma Rosae Lib., Mem. Linn. Soc. Paris **5**: 405. 1827.

On *Rosa* sp. (cult.)

The perfect stage *Diplocarpon Rosae* (S.) Wolf., described from North America but it has not been found outside the Continental area.

El Valle: Colegio N. S. de los Andes, above Cali, No. *454*, June 9, 1929.

*157. Cincinnobella parodiellicola P. Henn., Hedwigia **43**: 386. 1904.

On *Parodiella paraguayensis* Speg. on *Meibomia purpurea* (Mill.) Vail.

Antioquia: Experiment Station Grounds, Medellín, No. *282* (R. A. Toro) Oct. 15, 1927.

*158. **Coniothyrium Panici** Sydow sp. nov.

Stromata hypophylla, plus minus aequaliter dispersa, sine maculis typicis, primitus decolorations minutas flavidas efficientia, demum in folio emortuo pallide et sordide ochracee colorate sifa, angusta, usque 1 mm vel ultra longa, 100–150 u lata, striiformia, axe vel dense seriatium disposita, parallelo currentia, intraepidermalia, sub-indo autem cum basi paullo profundius innata, parenchymatice contexta, 1–vel saepius pluriloculigere; loculi depresso-globosi, saepe sat irregularis, 50–80 u diam., ommio clausi, in maturitate ed verticem irregulariter disrumpentes; conidia oblongo-ovata vel ellipsoidea, utrinque non vel lenissime attenuata, obtusa, continua, diu hyalina, tandem mellea, saepe minute 1–2 guttulata, 5–7. u large, 2.5–3.5 u lata, in cellulis parietis brevissima conoidee vel papilliformiter prominulis orta.

On *Panicum maximum* Jacq.

El Valle: Dry trickets near San Pedro, N. of Buga. No. *417*, June 4, 1929 (type).

Linochora polyadelpha Sydow sp. nov.

Maculae haud typicae, irreguariter et laxe sparsce, subinde confluentes, in utraque folii pagina visibiles, sordide rufobrunneae, in

hypophyllo pallidiores, 4–8 mm diam., pycnidia semper epiphylla, aequaliter et dense dispersa, in mesophylle profundo immersa, globulosa vel globosa-ovata, saepe irregularia, ostiolo plano atypice praedita, 180–250 u diam., membrana pycnidii 10–15 u crassa, concentrice fibrosa, vix vel indistincte celulosa sub-hyalina vel dilutissima flavida, ad' verticem atro-brunnea et clypeum minutum 20–35 u crassum formens; conidia copiosissima, filiformia, utrinque non ve santum une fine lenissime, attenuata, plerumque faleta, uncinata vel in forman signi S curvata, rare recta, continua, hyalina, 12–23 u longa, 1–1.5 u lata; coniodiophora subulata-bacillaria, sursum valde attenuata, simplicia, ad basim saep fasciculatim conjuncta, 12–25 u longa, ad basim 2–3 u lata.

On large undetermined tree, probably a *Coccoloba*.

Panamá: Finca La Isleta, along road E. of Panamá City, No. *176*, Apr. 28, 1929. (type).

*159. Phoma Caryophilli Cooke, Grevillea **13**: 94. 1884.

On *Dianthus caryophillus* L.

Antioquia: Grainzales, No. *275 a* (R. A. Toro), Sept. 3, 1927.

*160. Phomopsis vexans (Sacc. & Syd.) Harter, Jour. Agr. Res. **2**: 338. 1914.

Phoma vexans Sacc. & Syd. Syll. Fung. **14**: 889. 1899.

On *Solanum melongena* L.

This fungus was causing considerable damage to eggplants in the gardens around Cali. It was also observed although not collected, attacking eggpant seedlings in a Chinese garden near Colón, Panamá.

El Valle: Garden at San Fernando, just outside of Cali, No. *295*, May 18, 1929.

*161. Phyllosticta aurantiicola (B. & C.) Sacc. Syll. Fung. **3**: 13. 1884.

Sphaeropsis aurantiicola B. & C., Journ. Linn. Soc. **10**: 352. 1868.

Our specimen agrees with this species more than any other known on *Citrus*. The spores measure 4–8 x 1.3–26 u.

On *Citrus aurantifolia* (Christm.) Swingle.

El Valle: La Selva, near Tuluá, No. *524*, June 6, 1929. (det. J. A. B. Nolla).

162. Septoria albo-maculans Sydow, Ann. Myc. **2**: 171. 1904.

On *Eupatorium* sp.

Antioquia: Medellín. No. *307* (R. A. Toro), June 10, 1928.

163. SEPTORIA LACTUCAE Peck. Atti Soc. Culteg. Italiana **2**: 35. 1879.

On *Lactuca sativa* L.

EL VALLE: Gardens outside of Cali, No. *405,* June 2, 1929. (det. C. Chupp).

164. SEPTORIA LYCOPERSICI Speg., Anal. Soc. Ci. Argent. **12**: 115. 1881.

On *Lycopersicum esculentum* L.

EL VALLE: Finca Rincon along Pance River, S. of Cali, No. *253,* May 14, 1929; Garden at Hotel Posso, Cartago, No. *379,* May 30, 1929.

*165. SEPTORIA PRINGRAE Speg., Anal. Soc. Cient. Argentina **13**: 17. 1882.

On *Baccharis floribunda* H. B. K.

ANTIOQUIA: Boquerón, No. *297* (R. A. Toro), Nov. 5, 1927.

*166. SEPTORIA TOVARENSIS Sydow, Ann. Mycol. **23**: 189. 1930.

The purple violet zones limiting the spots, as described for the species are not evident in our material and the spores measure 21–56 x 0.6–0. 8u.

On *Plantago hirtella* H. B. K.

EL VALLE: College N. S. de los Andes, above Cali, No. *459,* June 10, 1929.

CUNDINAMARCA: Ravines between Cerros Monserrate and Guadalupe, above Bogotá, No. *606,* June 25, 1929.

Family 2. LEPTOSTROMATACEAE

*167. LEPRIEURINA WINTERIANA Arnaud, Theses Fac. Sci. Paris **1598**:210. 1918.

On *Annona muricata* L.

EL VALLE: La Selva near Tuluá, No. *526,* June 6, 1929.

Family 3. EXCIPULACEAE

*168. EPHELIS MEXICANA Fries; Berk & Curt., Journ. Linn. Soc. **10**: 353. 1868.

On *Chaetochloa geniculata* (Lam) Millsp.

EL VALLE: Experiment Station grounds, near Palmira, No. *260,* May 15, 1929; Hacienda El Hatico, between Cerrito and Palmira. No. *348,* May 23, 1929. (det. F. J. Seaver).

Order II.—MELANCONIALES

Family 1—Melanconiaceae

169. Colletotrichum gloeosporioides (Penz.) Sacc., Syll. Fung. **3**: 735. 1884.

Vermicularia gloeosporioides Penzig, Michelia **2**: 450. 1882.

On *Mangifera indica* L.

El Valle: Finca Piedra Grande, S. of Cali, No. *241*, May 14, 1929.

Antioquia: Fredonia, No. 235, (R. A. Toro) April 20, 1927.

On *Citrus sinensis* Osbeck.

El Valle: Gardens at Palmira, No. *334*, May 21, 1929.

*170. **Pestalozzia Cavendishiae** Chardon & Toro sp. nov.

Fungus hypophyllous, elevated, mostly gregarious and hypho-myceteous; pustules at first sub-epidermal, later errumpent, freed, blackening the matrix, not tearing the epidermis, forming a pycnidium-like structure, raising 55–60 u above leaf-surface, 68–100 u wide; spores 5-celled, erect, fusoid, slightly curved, often constricted at septa, 20.3–23.8 u long, lower median cell olivaceous, the upper clear umber, colored portion 15.2–17.1 x 4–6 u; basal hyaline cell, conic, apical cells hyaline, conic-cylindric, bearing a crest of usually 3 widely curved setae, 10.4–12 u long; pedicel short, tapering to an acute point.

The color of the median cells of this species are very variable, showing characteristics of all three spore-groups of the genus, as arranged by Doyer (Meded. Phytopath. Lab. "Willie Comm. Schelt. **9**: 1925).

The species resembles *P. gracilis* Kleb, in color of spores.

On *Cavendishia pubescens* (H. B. K.) Britton.

Antioquia: Granizales, No. *274* (R. A. Toro) Sept. 11, 1927 (type).

Order III.—HYPHOMYCETALES

Family 1—Mucedinaceae

*171. Ophiocladium Hordei Cavara, Zeitschr. Pzlanzenkr., **3**: 26. 1893.

On rotten leaf-sprouts of *Holcus sorghum sudanensis* Hitche.

Heretofore only known from the type locality on leaves of *Hordeum vulgare*. In microscopical characters this fungus agrees with Cavara's diagnosis.

Cundinamarca: La Picota Experimental Farm, South of Bogotá, No. *617* (in part), June 30, 1929.

*172. RAMULARIA AREOLA Atkinson, Bot. Gaz. **15**: 168. 1890.
On *Gossypium* sp.
EL VALLE: Hacienda El Hatico, between Cerrito and Palmira, No. *344*. May 23, 1929. (det. R. Ciferri).

*173. RAMULARIA OCCIDENTALIS Ellis & Kellerman.
On *Rumex obtusifolia* L.
CUNDINAMARCA: Ferrocarril de Girardot, near tunnel between Cipacón and Facatativa, No. *578*, June 21, 1929.

*174. VERTICILLIUM OCHRO-RUBRUM Desm., Ann. Sc. Nat. **22**: 71.
On lesions produced by *Monilia* on *Theobroma Cacao* L.
TOLIMA: Campo Alegre (R. A. Toro No. *564*) March 10, 1930. (Collected by Vittorio Sacco.)

Family 2—DEMATIACEAE

175. ALTERNARIA SOLANI (Ellis & Martin) Jones & Grout, Journ Agric. Vict. **2**: 464. 1904.
Macrosporium Solani Ellis & Martin, Am. Nat. **16**: 1003. 1882.
On *Solanum tuberosum* L.
EL VALLE: Experiment Station grounds, near Palmira, No. *231*, May 11, 1929.
On *Capsicum annum* L.
ANTIOQUIA: Medellín, No. *337* (R. A. Toro) Sept. 10, 1928.

*176. CERCOSPORELLA CANA Sacc., Nuov. Gior. Bot. Ital. **8**: 188. 1876.
Dr. Chupp says about this species: "Three species of *Cercospora* have been described on *Erigeron: C. cana* Sacc., *C. griseëlla* Peck and *C. ferruginea* Fckl. The last named has brown, procumbent conidiophores, and therefore does not fit this specimen. *C. griseëlla* apparently is a synonym of *C. cana Sacc.*, although Peck does not state whether *C. griseëlla* conidiophores have color or not.—Saccardo says that the hyaline conidiophores of *C. cana*, relates it closely with *Ramularia*, but that the spores are *Cercospora* shaped.—This would make it a *Cercosporella*. The specimen certainly is a *Cercosporella* with hyaline, fasciculate (5–10 in cluster) very prominently geniculate conidiophores. As many as 10 scars on one coniodiophore where conidia have been borne 4-6 x 85–125 u. No septa observed. Conidia cylindrical on one end slightly attenuated. Both ends rounded, hyaline, granular contents, with small guttulae, 1–3 or more septate, 5–7 x 50–85 u. Mostly straight some curved

or slightly undulate. The description given of *C. cana* and *C. griseëlla* fit this specimen very well."

On *Erigeron spathulatus* Vahl.

ANTIOQUIA: Medellín, No. *102*, May 26, 1926.

*177. FUMAGO VAGANS Pers. Myc. Eu. **1**: 9. 1822.

On *Triticum aestivum* L.

CUNDINAMARCA: Sibaté, collected by Jorge Díaz *no number*, Sept. 2, 1929.

On *Dactylis glomerata* L.

CUNDINAMARCA: Chapinero, No. *540*, (R. A. Toro) Nov. 10, 1929.

178. HELMINTHOSPORIUM ORYZAE Breda de Haan, Bull. Inst. Bot. Buitenz. **6**: **11**. 1900.

On *Oryza sativa* L.

EL VALLE: Finca San Joaquín, S. of Cali, No. *233*, May 14, 1929.
CUNDINAMARCA: Girardot, No. *551*, (R. A. Toro), Feb. 10, 1929.

*179. HELMINTHOSPORIUM RAVENELII Curtis; Berk. Grevillea **3**: 102. 1874.

On *Sporobolus indicus* (L.) R. Br.

EL VALLE: Exp. Sta. grounds, Palmira, No. *259*, May 15, 1929. (det. H. H. Whetzel).

On *Sporololus Berteroanus* (Trin.) H. & C.

ANTIOQUIA: Medellín, No. *290* (R. A. Toro), Nov. 10, 1927.

On *Sporobolus* sp.

CUNDINAMARCA: Chapinero, No. 537 (R. A. Toro) Nov. 10, 1929.

*180. MACROSPORIUM PARASITICUM Thümen, Myc. Univ. 667. 1877.

On *Allium Cepa* L.

EL VALLE: Garden at La Cumbre, Cordillera Occidental, No. *517* June 7, 1929. (det. C. Chupp).

181. MACROSPORIUM PORRI Ellis, Grevillea **8**: 12. 1879.

On *Allium Cepa* L.

EL VALLE: Finca Rincón, along Pance R., S. Cali, No. *252*, May 14, 1929. (det. C. Chupp).

ANTIOQUIA: Medellín, No. *329* (R. A. Toro), July 28, 1928.

*182. **Napicladium Caricae** Chardon & Ciferri sp. nov.

Spots amphigenous, mostly circular, solitary, pale yellow at the center, brown on the periphery, indistinctly zonate, 3–12 mm. in diameter; conidiophores few in number, fasciculate, poorly developed, flexible, sub-erect, brownish, 2–4, generally 3–4, septate constricted

at the apical septa, slightly so at the basal, ends rounded, 160–200 u long, 28–32 u wide; conidia acrogenous, light brown, solitary, 2–4 septate.

On leaves of *Carica* sp.

EL VALLE: Palmira—Pradera road, No. *341*, May 23, 1929. (type)

*183. ? POLYTHRINCIUM TRIFOLI Kunze & Schmidt. Myk. Hefte 1: 3. 1817.

On *Trifolium repens.*

CUNDINAMARCA: Along road beyond Salto de Tequendama, No. *674* July 7, 1929. (det. C. Chupp).

CERCOSPORAE

CHARLES CHUPP *

*184. **Cercospora Ambrosiae** Chupp sp. nov. ad. interim.* *

Spots irregular in shapo, frequently at the tip of the leaf, 2–10 mm. in diameter, medium to dark brown, sometimes not distinct below, difficult to differentiate from Septoria spots on the same foliage. Conidiophores amphigenous, in numerous fascicles, many of which arise from prominent dark spherical stromae, rarely less than 15 conidiophores in a fascicle. Conidiophores straight to slightly tortuous, fairly uniform in diameter, a few slightly geniculate, septation not very evident, 0–3, olivaceous in color, 4–5 x 30–80 u mostly 4 x 40–60 u. Conidia cylindrical to distictly obclavate, straight to curved, rounded at each end, with an evident papilla of attachment at the base of some, 1–5 septate, strong constriction at some of the septa, distinctly olivaceous in color, very variable in size, but characterized by being very wide as compared with the average Cercospora spore, 6–10 x 20–95 u.

This differs from *C. racemosa* in not having any procumbent, branched conidiophores, and having wide, colored conidia instead of the narrow ones which the original description of *C. racemosa* gives. The type material and also other material collected on *Teucrum canadense* really has olivaceous, wide conidia, but shows procumbent, branched conidiophores. Davis, 1924, gives notes on *C. racemosa* on *Prenanthes alba,* where he describes conidiophores in dense fascicles arising from a prominent stroma, and being unbranched, sparingly septate. But he states that the conidiophores are fuligenous and the conidia hyaline. This does not agree with the present specimen.

* Contribution of the Department of Plant Pathology, Cornell University.

** Dr. Chupp, a modest but a very thorough investigator, has been reluctant in accepting the responsibility for the publication of his new species of *Cercospora* described herein, but we have ventured to publish them as new species "ad interim", thus giving him and other investigators an opportunity to verify them.—*The Authors.*

C. arcti-ambrosiae has been described on *Ambrosia*, but type material shows the conidiophores to be long, rather crooked, septation very evident, small branches common, and the spores very narrow and hyaline. Neither is it like *C. brunnea* nor *C. ferruginea* or other species on closely related Compositae.

On *Ambrosia peruviana* Willd.

CUNDINAMARCA: Near tunnel between Cipacón and Facatativá, on the Girardot railroad, No. *580*, June 21, 1929 (type).

*185. CERCOSPORA APII Fr., Hedwigia **3**: 10. 1864.

On *Apium graveolens* L. var. *dulce* D. C.

EL VALLE: Garden at San Fernando, Cali, No. *296*, May 18, 1929.

*186. CERCOSPORA ATRICINITA H. & W., Mycol. **3**: 14. 1911.

On *Crassina elegans* (Jaq.) Kuntze.

ANTIOQUIA: Parque Independencia, Medellín, No. *251* (R. A. Toro) Sept. 3, 1927.

*187. CERCOSPORA BETICOLA Sacc., Nuov. Giorn. Bot. Ital. **8**: 189. 1876.

On *Beta vulgaris*, var. *cicla*.

EL VALLE: Garden at San Fernando, Cali, No. *305*, May 18, 1929.

On *Beta vulgaris* L.

EL VALLE: Hacienda Riopaila, S. of Zarzal, No. *400*, May 31, 1929.

*188. CERCOSPORA BLOXAMI B. & Br., Ann. Mag. Nat. Hist. V, 9: 183. 1882.

It is difficult to decide what name to use. The following Cercosporae have been reported on Brassica: *brassica-campestris*, *albomaculans*, *brassicicola* (sometimes wrongly spelled crassicicola) *bloxami*, and *cruciferarum*. The oldest is *Bloxami* but Berkerley's description is so meager that it would be impossible to determine whether it is Cercospora. If we accept Young's (1916) amendment of this species, it has priority. After examining a large number of specimens of all the species named, and also reading the original description, it is so apparent that there are such slight differences that they can be classed as one excepting *albomaculans* which is a Cercosporella.

If cross-inoculations were made it probably could be proved that all the above names are synonyms of *C. armoraciae* on horse radish, for there is as much variation in this species as collected from a number of states, as there is between it and the other named species.

On *Brassica juncea* L.

El Valle: Along streets at La Cumbre, Cordillera Occidental, No. *515,* June 12, 1929.

*189. Cercospora Byrsoniamatis Maub., Bull. Soc. Myc. Fr. **36**: 40. 1920.

Since *Bunchosia* and *Byrsoniama* are so closely related and this specimen fits very closely the description given for *C. Byrsoniamatis* on *Byrsonima,* the same species is listed here on *Bunchosia.*

On *Bunchosia cornifolia* HBK.

El Valle: Along Cauca River, near Cali, No. *432,* June 8, 1929.

*190. Cercospora canescens E. & M., Amer. Nat. **16**: 1003. 1882.

Ten species of Cercospora have been reported on *Phaseolus.* Probably there are only two distinct species or possibly three. It will take some time to work out the synonymy. This seems to be *C. canescens,* as it fits the description very closely.

On *Phaseolus* sp.

El Valle: Near San Pedro, N. of Buga, No. *420,* June 4, 1929.

*191. Cercospora Cassiae P. Henn., Bull. herb. Boiss. **1**: 121. 1823.

Among the 15 species and varieties reported on Cassia, none of the descriptions fit exactly. I am listing it under *C. cassiae* P. Henn as the description most nearly fits it and because of the width of its spores. I have not seen a type specimen of *C. cassiae.* I have not seen Cercospora spores as wide as this, so that possibly it may be another genus. Characteristics of:

C. Cassiae	*This specimen*
Spots round, brown	the same
Spots amphigenous	" "
Fascicles hypophyllous	" "
Fascicles dense	" "
Fascicles dark brown	medium brown
Prominent stroma	same
Conidiophores not branched	"
Conidiophores rarely septate	"
Conidiophores brown	olivaceous brown
Spores long clavate	spores reverse napiform
Spores occasionally curved	spores straight
Spores yellowish olivaceous	spores yellowish olivaceous
Spores with large guttulae	spores the same
Spores 3–pluriseptate	spores 0–3 septate
Spores 8–12 x 21–50	spores 12–18 x 40–60

On *Cassia leptocarpa* Benth.

El Valle: Candelaria, No. *331,* May 21, 1929.

192. Cercospora coffeicola B. & C., Grevillea **9**: 98. 1881.
On *Coffea arabica* L.
El Valle: Hacienda Bitaco, Cordillera Occidental, No. *483*, June 11, 1929.

193. Cercospora Capsici Heald & Wolf., Mycologia **3**: 15. 1911.
On *Capsicum frutescens* L.
El Valle: Garden at San Fernando, Cali, No. *299*, May 18, 1929.
On *Capsisum baccatum* L.
Antioquia: Fredonia, No. *232* (R. A. Toro) July 31, 1927.

*194. Cercospora cearea Petch, Ann. Roy. Bot. Gard. Peradeniya **3**: 9. 1906.

The larger tan spots (few in number) are typically *Cercospora henningsii* Allesch. with the smooth, straight, brown almost not septate conidiophores, and very evident septate conidia. The fascicles are amphigenous. The small angular white centered spots have the fruiting bodies on the lower side of the leaf. The conidiophores are long, reaching 150 u are tortuous and geniculate very plainly multiseptate and more nearly olivaceous brown or smoky than pure brown as is *C. henningsii*. The conidia are very faintly or not at all septate. This does not fit in with *C. manihotis*, or any species described on this host. It more nearly fits the description of *C. cearae*, therefore, temporarily it is put under this species.

On *Manihot Manihot* (L) Cock.
Panamá: Along road, 8 mi. E. of Panamá City, No. *181*, Apr. 28, 1929.
El Valle: Finca Piedra Grande, S. of Cali, No. *245*, May 14, 1929.

*195. **Cercospora Coriariae** Chupp. sp. nov. ad. interim.

Spots amphigenous, tobacco-brown, circular, definite, some bordered by a narrow darker margin, larger ones sometimes slightly zonate, mostly 1–3 on a leaflet, but occasionally as many as ten, on lower surface of leaf not so definite as above, 0.5–2.5 mm. in idameter. Fascicles arising from larger globose, brown or almost black, stromae, which to the unaided eye, have much the appearance of pycnidia. These are mostly epiphyllous, but some may be hypophyllous. The conidiophores arises from the stromae in rather dense fascicles, and are characterized by their narrowness (as compared with those of most other Cercospora species). They are more or less erect, rarely straight, but undulate to tortuous, not definitely denticulate nor geniculate, but sometimes bent slightly near the tip, septa very rarely guttulae present in a few of the larger ones, color olivaceous brown, 2.5–4 x 10–70 u, mostly about 3 u wide. Conidia

obclavate, almost straight to curved or bent abruptly near the middle, multiseptate, but septa difficult to distinguish, guttulae prominent, and extending sometimes almost to the tip of the spore, the base is characteristically truncate, and the narrowed tip rounded, color olivaceous, almost light green, 4–5 x 50–100 u.

On *Coriaria thymifolia* H. & B.

CUNDINAMARCA: Slopes of Salto to Tequendama, No. *655*, June 6, 1929. (type).

*196. CERCOSPORA ERECHTITIS Atk., Jour. Elisha Mitchell Soc. **8**. 1892.

On *Erechtitis valerianaefolia* (Wolf) DC.

EL VALLE: Hacienda Riopaila, S. of Zarzal, No. 389, May 31, 1929.

*197. CERCOSPORA ERYTHROGENA Atk. Jour. Elisha Mitchell Soc. **8**: 1892.

Only 3 *Cercosporae* have been described on the Melastomaceae: *C. melastomatis* Pat.—1893, *C. miconiae* Frag. et Cif. 1927 and *C. erythrogena* Atk. 1892. The three have about the same description, all of which fit this specimen. All have branched conidiophores for instance, and almost hyaline very narrow spores. Atkinson's specimens look much like this although possibly not such long conidoiphores or spores. I had no specimens of *C. melastomatis* of *C. miconiae* to compare. The spots of No. *651*, do not look the same as those of *217*, but it is referred to the same species.

On *Aciotes indecora* (Boryl.) Triana.

EL VALLE: Near Buenaventura, No. *217*, May 8, 1929.

On *Miconia* sp.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *651*, July 6, 1929.

*198. CERCOSPORA ERYTHRINAE E. & E., Jour., Mycol. **3**: 18. 1887.

Both *C. erythrinae* and *C. erythrinicola* Tharp have been described on Erythrina. The *C. erythrinae* spots are very minute as compared with those of the other species. The conidiophores are supposed to be epiphyllous and those of the others hypophyllous. The conidiophores are supposed to be 30–50 and those of the other 40–75 u. These specimens have the type of spots described for *C. erythrinicola*, but the large stromae, the short conidiophores and the yellowish hyaline conidia described for *C. erythrinae*. The fruiting may be on both sides of the spots. Therefore I am inclined to believe that the two species may be the same, although I have not seen type material of *C. erythinicola*.

On *Erythrina* sp.

EL VALLE: Banks of Cauca River, near Cali, No. *318*, May 21, 1929.

On *Erythrina glauca* Wild.

EL VALLE: Banks of Cauca River, near Cali, No. *319*, May 21, 1929.

*199. CERCOSPORA FASEOLINA Speg., Anal. Soc. Ci. Argent. **12**: 1881.

Ten species of Cercospora are described on Phaseolus. The only one that comes near fitting this specimen is *C. faseolina* described by Spegazzini in Argentine on *P. ovatus*. It may later be found that the two are not the same. I have no specimens to make comparisons. These conidiospores are so pale olivaceous that they might almost be taken for a Cercosporella.

On *Phaseolus vulgaris* L.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *475*, June 10, 1929.

*200. CERCOSPORA FUSIMACULANS Atk., Jour. Elisha Mitchell Soc. **8**: 1892.

Aside from slight differences in spore measurements and other minor variations, which do not seem to play much part in distinguishing one Cercospora from another, the Colombian specimen, *Cercospora panici* Davis and *C. fusimaculans* Atk. all seem alike. Therefore I am naming this specimen *C. fusimaculans*. It is interesting also that some one has suggested *C. sorghi* E. & E., which commonly is present on *Sorphum* and *Zea Mays* as being found on a *Panicum*. *C. sorghi* differs very little in its description—except as to size—from the other named species. It therefore is possible that *C. fusimaculans* is a synonym of *C. sorghi*, but this could not be determined without making cross-inoculations.

On *Panicum maximum* Jacq.

EL VALLE: Palmira, No. *293*, May 16, 1929.

*201. CERCOSPORA GILBERTII Speg., Anal. Soc. Ci. Argent. **10**: 38. 1880.

This specimen is characterized by the very evident lines of zonation in the spots, and which are wavy or scalloped in such a way as to make a rather pretty design. The conidiophores arise in very dense clusters from a large compact stroma. These points are not mentioned in Spegazzini's original description of *C. gilbertii*.

On *Iresine celosia* L.

TOLIMA: Along Combeima River, near Ibague, No. *572*, June 20, 1929.

*202. **Cercospora Hemidiodiae** Toro sp. nov.

Irregular, indefinite, small, brown or brick-red blotches that may coalosce and cover a large part of the leaflet. The spots have no definite border. On the corresponding lower side of the leaf are brown or dark patches of the fungous fruiting bodies which sometimes attain almost a purple shade. No stroma or only a very slight one is developed. The conidiophores arise in fascicles of less than ten, are long, curved or bent, branched and frequently ending in a long hypha-like extension which is more narrow and lighter colored than the lower part of the conidiophore, septa rare, guttulae in wider parts, olivaceous, 2–5 x 40–125 u. Conidia are borne standing erect or hanging downward. They are straight or curved, long and slender, distinctly obclavate, being gradually attenuated to an almost sharp point, both ends rounded, multiseptate, no constrictions, faintly olivaceous, 3–5 x 50–115 u.

This seems quite distinct from other species of *Cercospora* on other Rubiaceae and is characterized by its peculiarly branched conidiophores.

On living leaves of *Hemidiodia ocimifolia* (Wild.) Schum. Explorations of Porto Rico, Chardon No. *1174* (type), Coamo, August 23, 1920.

TOLIMA: Along Combeima River near Ibague, No. *573*, June 20, 1929.

*203. CERCOSPORA HENNINGSII Allesch.; P. Henn. in Engl. Ostafr. Pflanz. **3**: 35. 1895.

On *Manihot Manihot* (L.) Cock.

SANTANDER: Puerto Wilches, along Magdalena River, No. *166*, June 18, 1926.

EL VALLE: Finca Piedra Grande, S. of Cali, No. *244*, May 14, 1929; La Herradura, Palmira, No. *369*, May 28, 1929.

*204. CERCOSPORA HYPTIDIS Speg., Bol. Acad. Nac. Ci. Cordoba **11**: 1889.

This may be a new species, among the 14 species listed on the Labiateae. I am naming this *C. hyptidis* Speg. since Spegazzini's description fits the specimen more nearly than do any of the other thirteen. The conidiophores are branched which is not mentioned for *C. hyptidis*. Furthermore the conidiophores are shorter and the conidia longer than the measurements given by Spegazzini. *C. trichostemmatis* P. Henn. has branched conidiophores, but has colored conidia and in other ways differs from the specimen.

On *Hyptis verticillata* Jacq.

EL VALLE: Along river at Buga, No. *429*, June 5, 1929.

*205. Cercospora köpkei Kruger, Ber. d. Vers. Zuk. Ost-Java. 1899.

Five species of *Cercospora* have been reported on sugar-cane, namely, *köpkei, longipes, Sacchari, vaginae* and *acerosum*. This has some characteristics of all of them. *C. sacchari* has been changed to a *Helminthosporium*. *C. longipes* as drawn by Butler has far too spindly, wavy conidiophores to fit the specimen. The spots do not fit the description of *C. vaginae*. The description for *C. acerosum* is hardly complete enough to be sure of its identity. Therefore, by process of elimination, the specimen is named C. *köpkei* Kruger, although some of the other species named might be the same.

On *Saccharum officinarum* L.

El Valle: Finca Las Cañas, S. of Jamundi, No. *267*, May 15, 1929.

206. Cercospora longissima (Trav.) Sacc. Syll. Fung. **18**: 607. 1906.

Cercospora longispora (Cug. in herb.) Traverso, Malpighia **17**: 217. 1903.

Cercospora Lactucae Stevenson, Journ. Dept. Agric. Porto Rico. **1**: 105. 1917.

Cercospora Lactucae Welles, Phytopath. **13**: 289. 1923.

On *Lactuca sativa* L.

Antioquia: Medellín, No. *280* (R. A. Toro) Nov. 8, 1927.

*207. Cercospora Mali Ell & Everh.

On *Pyrus Malus* L. (seedling).

El Valle: Finca Santa Bárbara, Palmira, No. *285*, May 16, 1929.

*208. Cercospora Mangiferae Koorders, Philippine Jour. Sci. **8**: 507. 1913.

Sydow described this species as having fuscous spores. The spores are almost coal black, being darker in color than any other Cercospora spores I have ever seen. They seem mostly 5–septate. They are plainly obclavate, and therefore do not resemble a typical *Helminthosporium*.

On *Mangifera indica* L.

El Valle: La Herradura, Palmira, No. *370*, May 28, 1929.

*209. Cercospora megalopotamica Speg., Anal. Soc. Ci. Argent. **12**: 1881.

Apparently this is *Cercospora megalopotamica* Speg, although I do not have authentic specimens with which to compare it. Oc-

casional conidiophores are slightly branched which is not mentioned by Spegazzini.

On *Bidens pilosus* L.

El Valle: Finca Las Cañas, S. of Jamundi, No. *272*, May 15, 1929.

*210. Cercospora melastomatis Pat., Bull. Soc. Mycol. Fr. **9**: 160. 1893.

Three species of *Cercospora* have been reported on the Melastomataceae. *C. melastomatis*, *C. Miconiae* and *C. erythrogena*. The specimen does not agree with the descriptions for the last two. It does fit *C. melastomatis* more closely. The differences are that the specimen has more narrow conidiophores 3.5–4.5 instead of 6–7 u. Conidia are plainly olivaceous instead of light brown, and the conidiophores seem never to branch, while those of *C. melastomatis* are supposed to branch occasionally.

On *Miconia theazans* (Bonpl.) Cogn.

Cundinamarca: Near tunnel between Cipacón and Facatativá, on the Girardot railroad, No. *579*, June 21, 1929.

*211. Cercospora Melochiae P. Henn., Hedwigia **43**: 395. 1904.

On *Melochia lupulina* Sw.

El Valle: La Selva, near Tuluá, No. *327*, July 6, 1929.

212. Cercospora Nicotianae E. & E., Proc. Acad. Sci. Phila. **1893**: 170. 1893.

Three species of *Cercospora* have been described on *Nicotiana tabacum*—namely, *Nicotianae*, *Raciborskii*, and *solanicola*. Their three descriptions read much alike. Probably all are synonyms of each other. Raciborskii says the one named after him is *C. Nicotianae*, although Saccardo and Sydow dispute his statement. This material is like *C. nicotianae* excepting that the conidiophores sometimes attain 600 u in length and the conidia 250 u. Length, however has little to do with classification in *Cercosporae*. According to the collectors' notes, this is a very common spot of tobacco in Colombia.

On *Nicotiana tabacum* L.

El Valle: Candelaria, No. *330*, May 21, 1929.

Cercospora nymphaeaceae C. & E., Grevillea **6**: 89. 1878.

Both *C. nymphaeaceae* C. & E. and *C. exotica* E. & E. have been described on this host. Both the descriptions and the specimens show that the latter is a synonym having been described later.

On *Nymphaea* sp.

Panama: Plant Introduction Garden at Summit, Canal Zone, No. *191,* Apr. 29, 1929.

*213. Cercospora paulensis P. Henn., Hedwigia **48**: 18. 1909.

If we accept Maublanc and Rangel's amended description, this fits very well. In the end it may turn out to be the same as *C. simulata* (*C. chamaecristae*), excepting that in this and in the specimen which Rangel sent me, the fruit bodies do not form an effuse layer, but are in definite spots.

On *Cassia occidentalis* L.

El Valle: Railroad bridge near Cartago, No. *380,* May 30, 1929.

*214. Cercospora pipericola Sacc. & Syd., Mo. Bot. Gard. Ann. Rpt. **9**: 119. 1898.

Three species of *Cercospora* have been named on Piper: *C. pipericola* 1898, *C. portoricensis* 1901 and *C. piperis* Pat. 1895. The second is effuse on the lower side of the leaf, causing olivaceous, continuous patches. *C. pipericola* is similar only that the patches are limited and circular, while in *C. piperis*, there are definite dead areas in the leaf. The fruiting bodies of the three are similar so that all of them may be the same. This has not been proved. Therefore the name *C. pipericola*, (synonym *C. piperis* E. et E.) is used, for this is the species that has been described on *Piper hispidum.*

On *Piper hispidum* HBK.

Tolima: El Boqueron, W. of Ibagué, along road to Armenis, No. *700,* July 13, 1929.

215. Cercospora portoricensis Earle, Muhlenbergia **1**: 15. 1901.

On *Piper aduncum* L.

Antioquia: Medellín, No. *17,* Apr. 21, 1926.

On *Pothomorphe peltata* (L.) Miq.

Panama: Near Frijoles R. R. Station, Canal Zone, No. *199,* Apr. 29, 1929.

*216. Cercospora profusa Sydow., Ann. Mycol. **7**: 175. 1909.

On *Acalypha* sp.

El Valle: Experiment Station grounds, Palmira, No. *232,* May 11, 1929.

*217. Cercospora pteridis Siem., Arch. Biol. Towarz. Warsz. **114**: 57. 1923.

This fits Siemaszko's description very well, excepting that he

states both the conidiophores and conidia have few septa. This specimen shows close septation.

On *Pteris* sp.

CALDAS: Along Quindio River, near Armenia, No. *722,* July 15, 1929.

*218. CERCOSPORA RICINELLA Sacc. & Berl. Atti Ist. Ven. VI, **3**: 11. 1885.

On *Ricinus communis* L.

EL VALLE: Pradera–Palmira Road, No. *340,* May 25, 1929.

219. CERCOSPORA RIGOSPORA Atk,. Jour. Elisha Mitchell Soc. **3**: 65. 1891.

On *Solanum nigrum* L.

ANTIOQUIA: Bolombolo, along Cauca River, No. *117,* May 27, 1926.

Angelopolis, No. *331* (R. A. Toro) July 27, 1927.

EL VALLE: Banks of Cauca River, near Cali, No. 316, May 21, 1929; Hacienda Bitaco, Cordillera Occidental, No. *472,* June 10, 1929.

*220 CERCOSPORA ROSAECOLA Pass., Myc. Univ. 333; Bot. Jahresb. **1875**: 276.

On *Rosa* sp. (cultv.)

Among the shorter conidiophores which arise in fascicles from prominent stromae as is true of *C. rosaecola* are scattered, elongated conidiophores, seemingly borne singly and without stromae. These long conidiophores agree well with the description of *C. rosaecola* var. *undosa* Davis.

EL VALLE: Finca Piedra Grande, S. of Cali, No. *239,* May 14, 1929; Finca Santa Bárbara, Palmira, No. *284,* May 16, 1929.

*221. **Cercospora sensitivae** (Speg.) comb. nov.

Cercosporina sensitivae Speg., An. Museo Nac. Buenos Aires **20**: 427. 1910.

Spegazzini has divided *Cercospora* into the colored spored and hyaline-spored. The latter he names *Cercosporina* and he had named this *C. sensitivae* but with the very dilute coloring in many spores this division seems more confusing than helpful, and *Cercosporina* is not being retained.

On *Mimosa pudica* L.

EL VALLE: Buga la Grande, No. *536,* June 14, 1929.

*222. CERCOSPORA SIMULATA E. & E., Jour. Myc. **1**: 64. 1885.

Resemble somewhat immature perithecia. In No. *250,* even if little or no *Cercospora* can be found it must be the same as No. *314.*

Both Nos. *250* and *314* look in many ways like *Cercospora simulata*, and yet is not the same in all points. The conidiophores of this specimen do not seem to be in such strict fascicles, and some appear to be procumbent. The spores too, are a little more irregular in shape and longer. The spot looks like simulata, the color and septation of the conidiophores and conidia also meet the description. It does not look like any of the other 14 species and varieties reported on Cassia. No. *259* fits the description of the original, excepting that the conidiophores are shorter and conidia longer than the measurements recorded. Also instead of being brown, both the conidiophores and conidia are more nearly olivaceous. Excepting in the length of conidiophores, this specimen is much like No. *314*.

On *Cassia grandis* L.

El Valle: Finca Rincon, along Pance River, S. of Cali, No. *250* May 14, 1929; along banks of Cauca River near Cali, No. *314*, May 21, 1929.

On *Cassia hirsuta* L.

El Valle: Finca Rincon, along Pance River, S. of Cali, No. *259*, May 14, 1929; Finca Las Cañas, S. of Jamundi; No. *269*, May 15, 1929.

*223. Cercospora Sorghi E. & E., Jour. Mycol. **3**:15. 1887.

This fits very well *C. Sorphi* E. & E. It also fits very well—with one exception—the description of *C. zeae-maydis* Tehon and Daniels. They emphasize that conidiophores of their specimen had only scars and were not geniculate. Could this character have been brought about by extremely slow growth or just one period suitable for growing spores? The conidia of *C. sorghi* and *C. fusimaculans* are given as hyaline, but apparently both specimens on corn and *Panicum* have faintly olivaceous spores. The spores on the corn were very plainly septate, and nearly all the spores had three septa regardless of size. Occasionally there was one with four or more septa.

On *Sorghum*.

Panama: Along road Mi. E. of Panama City, No. *182*, Apr. 28, 1929.
El Valle: Finca Santa Bárbara, Pamira, No. *286*, May 16, 1929.

*224. Cercospora sphaeroidea Speg., Anal. Soc. Ci. Argent. **16**: 169. 1883.

I have not a specimen of *C. sphaeroidea* Speg. for comparison, but this fits very closely his description—more closely than does *C. Bauhiniae* which has been described on the genus *Bauhinia*. Of the

18 species and varieties reported on the Caesalpinacea, none of the others seem to be similar to this.

On Caesalpiniaceae.

EL VALLE: El Hatico, between Cerrito and Palmira, No. *355*, May 23, 1929.

CERCOSPORA STEVENSII Young, Mycologia **8**: 45. 1916.

Although the type material of *Cercospora Stevensii* does not have this peculiar spot depressed on top and bulging on the bottom, and its conidiophores are somewhat larger than of this specimen, the two are undoubtedly the same. Both have very dark, sinuous, conidiophores that arise from a dark stroma, and the conidia are of similar shapes and color. Young says the spores are hyaline, but type material shows they are pale olivaceous yellow. The peculiar twisting of the conidiophores which Young mentions, may refer to the sinuous condition near the ends of the conidiophores.

On *Andira inermis* HBK.

PANAMÁ: Finca La Isleta, along road 5 m. E. of Panama City, No. *175*, Apr. 28, 1929.

CERCOSPORA STIZOLOBII Syd., Ann. Mycol. **11**: 270. 1913.

Sydow has described both *Cercospora stizolobii* and C. *mucunae* on *Stizolobium*. Type material of *C. Mucunae*, shows that all American and Porto Rican collections given this name are *Cercospora Stizolobii*.

On *Stizolobium Deeringianum*.

PANAMA: Along road 8 Mi. E. of Panama City, No. *182*, Apr. 28, 1929.

*225. CERCOSPORA TRICHOPHILA Stevens, Trans. Il. Acad. Sci. **10**: 212, 1917.

On *Solanum torvum* Sw.

SANTANDER: Baranca Bermeja, along Magdalena River, No. *138*, June 17, 1926.

EL VALLE: Near Buenaventura, No. *221*, May 8, 1929; Finca "Rincon", along Pance River, S. of Cali, No. *256*, May 14, 1929; Experiment Station grounds, Palmira, No. *290*, May 16, 1929.

CUNDINAMARCA: Along road beyond Salto de Tequendama, No. *679*, June 7, 1929.

Family 3—STILBACEAE

Chardonia Ciferri gen. nov.

Hyalostilbeae didymosporae; synnema woody, dense, light colored, erect, glabrous; capitule compact, glabrous or nearly so, spheric to sub-spheric; conidiophores continuous or indistictly septate, hyaline, producing conidia by scission; conidia elliptic or cylindric, isolated or in short chains, arising at the apex of the conidiophores, hyaline, smooth, 1–septate; saprogenous, lignicolus. Type: *Chardonia rosea* Cif.

*226. **Chardonia rosea** Ciferri, sp. nov.

Erect fascicle of hyphae (Synnema) single, scattered over the surface of the substratum, not branched, pink to pale, 2–4 mm., usually 3 mm. in length; stalk (stipes) cylindric or nearly so, slightly enlarged at the base, 1–1.5 mm. diam., 2–3 mm. long, glabrous, woody, composed of hyaline, continuous or septate, erect, parallel, densely aggregated, 3–4 u. thick hyphae; head (capitule) spheric to sub-spheric, glabrous or nearly so, 1–2 mm., generally 1–1.5 mm. in diam., composed of tangled, hyaline, scarcely septate, conidigerous hyphae (conidiophores) conidiophores with round to sub-truncate apex, 1.5–2.5 u. thick, irregularly branched, mixed with sterile hyphae; conidia (arthrospores) produced by scission, isolated or in chains of 2–3 elements, 1–septate, narrowed at the septa, equilateral or slightly unsymmetric, cylindric, cylindric-apiculate or irregular in shape, 7–7 u. long, 3–4 u. thick; saprogenous, lignicolus.

On dead stems of *Guadua latifolia* Kunth.

EL VALLE: Banks of Cauca River, near Cali, No. *306*, May 21, 1929. (type).

Dedicated to the senior collector Carlos E. Chardon, well-known mycologist and specialist on tropical fungi. Among the few genera included in the Hyalostilbaceae didymosporae, this genus is related to *Didymostilbe*, but differs in the shape of the conidia.

227. STILBELLA FLAVIDA (Cooke) P. Henn., Bol. Mus. Goeldi **4**: 413. 1904.

Stilbum flavidum Cooke, Grevillea **9**: 11. 1880.

A very common parasite of coffee causing the well known American coffee disease. Its perfect stage, the basidiomycete *Omphalia flavida* (Cooke) Rang. et Maubl. was found in one instance by the senior writer on partially decayed coffee leaves.

On *Coffea arabica* L. *Synedrella notiflora* (L.) Gaertn., *Bidens* sp., *Oplismenus* sp., *Plantago* sp., and other weeds.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, Nos. *493, 494, 495, 496, 497* and *498*, June 11, 1929.

TOLIMA: Along Combeima River near Ibagué, No. *576*, June 20, 1929. On *Saracha Jaltomata* L.
ANTIOQUIA: Fredonia, No. *342*, (R. A. Toro) July 10, 1928.

Family 4—TUBERCULARIACEAE

AEGERITTA WEBBERI Fawcett, Mycologia **2**: 167. 1910.
On black fly on native lemon.
PANAMÁ: Garden at Ingenio Santa Rosa, No. *209*, May 5, 1929.

228. ASPERISPORIUM CARICAE (Speg.) Maub. Bull. Soc. Myc.
Cercospora Caricae Speg. Anal. Soc. Ci. Argentina **22**: 205. 1886.
Pucciniopsis Caricae Earle, Bull. N. Y. Bot. Gard. **2**: 340. 1902.
Pucciniopsis Caricae (Speg.) Seaver. Porto Rico. **8**: 104. 1926.
On *Carica Papaya* L.
ANTIOQUIA: Below Fredonia, near Cauca river, No. *238* (R. A. Toro), July 27, 1927.

USTILAGINALES

H. S. JACKSON *

The following fourteen species of smuts include all the Colombian collections of which we have any knowledge. Unless otherwise stated, the collections here reported for the first time were made by Commissioner Carlos E. Chardon during May–July of 1929. A few were collected in association with Sr. J. A. B. Nolla.

All the previous collections which have come to our knowledge were made by Dr. Eugene Mayor, of Neuchatel, Switzerland, who collected extensively in Colombia in 1910, and one by Dr. Chardon in 1926. These included 5 species. Three of these were included in the paper by H. and P. Sydow "Contribution a l' étude des champignons parasites de Colombie" published in Mem. Soc. Neuch. Sci. Nat. **5**: 422–411, 1914. The fourth species (No. 241 of this list) was reported later by Sydow (Ann. Myc. **13**: 37, 1915). The fifth one, or the corn smut, was collected and reported by Chardon in a previous paper (**4**) from Antioquia in 1926, where it seemed to be of common occurrence.

According to the testimony of Commissioner Chardon, who spent some time collecting in the Sabana de Bogotá at an altitude of 8,650 feet, the cereal smuts reported in this paper were causing considerable damage to wheat, oats and barley at La Picota Experimental

* Contribution from the Department of Botany, University of Toronto, Canada.

Farm and are probably wide-spread in the temperate sections of Colombia.

Several of the collections made by Dr. Chardon were identified by Professor H. H. Whetzel of Cornell University before they were sent to me, and No. *241* was seen by Dr. G. P. Clinton of the Connecticut Agricultural Experimental Station. All the identifications have, however, been verified by the present author who assumes all responsibility for their correctness.

Family 1.—Ustilaginaceae

*229. Ustilago Avenae (Pers.) Jensen, Charb. céréales 4. 1889.

Ustilago segetum Avenae Pers. Tent. Disp. Fung. 57. 1797.

This, one of the two common smuts attacking cultivated oats is practically co-extensive throughout the world with the cultivation of that crop. The other species *U. levis* (K. & S.) Magn. has not been reported for South America so far as we have been able to determine.

On *Avena sativa* L.

Cundinamarca: La Picota Experimental Farm, S. of Bogotá, No. *626,* June 30, 1929.

*230. Ustilago Hordei (Pers.) Kell. & Swingle, Ann. Rept. Kansas Agr. Exp. Sta. **2**:268. 1890.

Uredo segetum Hordei Pers. Tent. Disp. Fung. 57. 1797.

This so-called "covered smut" of barley is known nearly wherever that crop is in cultivation. It may be distinguished from the loose smut of barley by the smooth spores and by the fact that the sori are in the individual spikelets and the entire inflorescence is usually not consumed in the formation of the spores.

On *Hordeum vulgare* L.

Cundinamarca: La Picota Experimental Farm, S. of Bogotá, No. *624,* June 30, 1929.

*231. Ustilago nuda (Jensen) Kell. & Swingle, Ann. Rept. Kans. Agr. Exp. Sta. **2**:277. 1890.

Ustilago Hordei nuda Jensen, Charb. Céréales 4. 1899.

The "loose smut" of barley affects the host in the same manner as the loose smut of wheat, (*U. Tritici* (Pers.) Rostr.). It may be distinguished from *U. Hordei* by the roughened spore walls and by the fact that the inflorescence, except the rachis, is usually completely consumed in the formation of spores.

On *Hordeum vulgare* L.

Cundinamarca: La Picota Experimental Farm, S. of Bogotá, No. *625,* June 30, 1929.

*232. USTILAGO STRIAEFORMIS Westened, Viesal, Hedwigia **15**: 1. 1876.

Uredo striaeformis Westend. Bull. Acad. Roy. Belg. **18**^{2}: 406. 1851.

This common smut has a wide distribution in North America and in Europe and occurs in a wide range of grasses. The host listed above, however, is an uncommon one for this species.

On *Notholcus lanatus* (L) Nash.

CUNDINAMARCA: Wet meadows above Salto de Tequendama, Nos. *669, 670,* July 6, 1929.

*233. USTILAGO TRITICI (Pers.) Rostr. Overs. K. Danske Vid. Selsk. Forh. **1899**: 15. 1890.

Uredo segetum Tritici Pers. Tent. Disp. Fung. 57. 1797.

This is the "loose smut" of wheat. It corresponds in morphology and effect on the host and in life history to the loose smut of barley. It is found practically wherever wheat is grown.

On *Triticum vulgare* L.

CUNDINAMARCA: La Picota Experimental Farm, S. of Bogotá, No. *623,* June 30, 1929.

234. USTILAGO ZEAE (Beckm.) Unger.

On *Zea Mays* L.

ANTIOQUIA: Cafetal "Amalia" near Venecia, No. *108*, May 28, 1926.

235. SPHACELOTHECA HYDROPIPERIS (Schum.) DeBary, Verg. Morph. Biol. Pilze 187. 1884.

Uredo Hydropiperis Schum. Enum. Pl. Saell. **2**: 234. 1803.

Ustilago Hydropiperis Schrot., Beitr. Biol. Pfl. **2**: 355. 1877.

A common smut, found throughout the world on species of *Polygonum.* It has been previously collected on the same host at two localities in Cundinamarca, Colombia, by Eug. Mayor (Nos. *104, 104 a.*)

On *Polygonum acre* H. B. K.

CUNDINAMARCA: Along road beyond Salto de Tequendama, No. *681,* July 7, 1929.

*236. **Sphacelotheca cordobensis** (Speg.) comb. nov.

Ustilago cordobensis Speg. Anal. Soc. Ci. Argent. **12**: 64. 1881.

Ustilago Panici-leucophaei Brefeld, Unters. Gesammt. Myk. **12**: 114. 1895.

Ustilago insularis P. Henn. Hedwigia **35**: 51. 1896.

Sphacelotheca Panici-leucophaei Clinton, N. Am. Flora **7**: 28. 1906.

Ustilago cacheutensis Speg. Anal. Mus. Nac. Buenos Aires **19**: 293. 1909.

The type collection of this species was collected near Córdoba, Argentina, by Dr. Hieronymus. The host was recorded in error as *Panicum Jaboncillum* (see Speg. Anal. Mus. Nac. Buenos Aires **19**: 288. 1909). Spegazzini (Rev. Argent. de Bot. **1**: 153. 1925) includes his two species as synonymous with *U. Panici-leucophaei* Bref., which was originally collected at Río de Janeiro, Brazil. The host is always *Valota* (*Panicum*) *insularis*. The species has apparently a wide distribution in South America and is known throughout Central America and the West Indies. A collection on *Panicum saccharatum* made in Arizona, U.S.A., is assigned to this species by Clinton (l.c.).

On *Valota insularis* (L.) Chase.

El Valle: Experiment Station Grounds, Palmira, No. *261*, May 15, 1929.

*237. Sphacelotheca Paspali-notati (P. Henn.) Clinton, Jour. Myc. **8**: 140. 1902.

Ustilago Paspali-notati P. Henn. in Herb.

This rare species was originally described from Mexico on *Paspalum notatum*.

On *Paspalum plicatulum* Michx.

El Valle: Near Cartago, *537*, June 14, 1929.

Family 2.—Tilletiaceae

238. Cintractia axicola (Berk.) Cornu, Ann. Sci. Nat. VI, **15**: 279. 1883.

Ustilago axicola Berk. Ann. Mag. Nat. Hist. II, **9**: 200. 1852.

This species appears to be common on various species of *Fimbrystylis* throughout Central America and the West Indies and in the South Eastern United States. The sori occur at the base of the peduncles or pedicels. It has been previously reported from Colombia by Sydow based on collections made by Mayor in Antioquia in three different localities (Nos. *259*, *259 a*, *259 b*).

On *Fimbrystylis diphylla* (Retz.) Vahl.

Panamá: Near well at Government Farm at Aguadulce, No. *210*, May 5, 1929.

El Valle: Near Buenaventura, No. *226*, May 8, 1929.

*239. CINTRACTIA LEUCODERMA (Berk.) P. Henn. Hedwigia **34**: 335. 1895.

Ustilago leucoderma Berk. Ann. Mag. Nat. Hist. II. **9**: 200. 1852.

This very striking species produces elongated sori surrounding the peduncles and pedicels, often also involving the rachis. It has a wide distribution from Florida throughout the West Indies and Central America and has been reported from a number of localities in South America.

On *Rynchospora corymbosa* (L.) Britton.

EL VALLE: Finca Las Cañas, S. of Jamundi, No. *264*, May 5, 1929; Marshes near R. R. station at Riopaila, No. *396*, May 31, 1929.

*240. TILLETIA ULEI Schrot. & P. Henn. Hedwigia **35**: 218. 1896.

This species was described from material collected on *Paspalum scrobiculatum* in Santa Catharina, Brazil, by E. Ule. The type has not been seen and the identification is tentative. The collection corresponds quite closely to *Tilletia rugispora* Ellis. Our collection, however, has somewhat smaller spores than in the specimen of that species distributed in Ell. & Ev. N. Am. Fungi No. *2704* and the sterile cells are larger and with thinner walls. It is entirely possible that when a range of collections can be studied the two species will be found to be synonymous.

On *Paspalum paniculatum* L.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *481*, June 10, 1929.

241. ENTYLOMA GALINSOGAE Sydow, Ann. Myc. **13**: 37. 1915.

The type of this rare species was collected on the same host in Colombia by Mayor. The exact type locality cannot be determined from the original description. Sydow (l.c.) says "pluribus locis (Angelopolis, Medellín, El Poblado, Cisneros) in Andibus Colombiae, 8. 1910, leg. Eug. Mayor."

On *Galinsoga caracasana* (DC) Sch. Bip.

EL VALLE: Hacienda La Foresta, Pradera, No. *336*, May 21, 1929.

UROCYSTIS ANEMONES (Pers.) Wint. Rab. Krypt. Fl. **1**: 123. 1881.

Uredo Anemones Pers. Tent. Disp. Fung. 56. 1797.

This species was not collected by Dr. Chardon. The above listed collections were made by Eug. Mayor, and reported by Sydow. The smut has a wide distribution on a large number of species and genera of Ranunculaceae.

On *Ranunculus pilosus* H.B.K.

ANTIOQUIA: Chemin de Neira a Manizales, October 2, 1910, No. *208;* Cafetal "La Camelia" near Angelopolis, August 25, 1910, No. *208 a.*

UREDINALES

F. D. KERN and H. H. WHETZEL*

Apparently the first report of a species of the Uredinales from Colombia was that of *Trichobasis Oxalidis* (*Puccinia Oxalidis* (Lev.) Dietel & Ellis) by Léveillé in 1863 (Prodomus Florae Novo-Granatensis Crytogamie, Ann. Sci. Nat. **4**. ser. XX, p. 299). The next report is that of Earle in 1899 (Bull. Torrey Club **26**: 632) in which he reports six species collected by Baker and determined by Dietel. This constitutes a first report from Colombia of the following species and the only report thus far for the four last:

Coleosporium Elephantopodis (Schw.) Thüm.

Puccinia claviformis Lagerh. (*Puccinia solanita* (Schw.) Arth.)

Puccinia appendiculata Wint. (*Prospodium appendiculatum* (Wint.) Arth.)

Puccinia Bombacis Diet.

Uromyces Manihotis P. Henn.

Uromyces Cissampelis Diet.

Acording to Mayor (Mem. Soc. Neuch. Sci. Nat. **5**: 442) the Princess Therese de Baviere (Beih. Bot. Centralb. B. **13**: 8) in 1903 reported two species from Colombia, *Uromyces Hedysari-paniculati* (Schw.) Farl. and *Uredo Theresiae* Neger. Sydow in 1902 and 1910 (Monog. Ured. vol. 1 & 2) is authority for two additional species from Colombia, *Uromyces euphorbiicola* (Berk. & Curt.) Tranz. (*Uromyces pröeminens* (DC.) Pass.) and *Puccinia levis* (Sacc. & Bizz.) P. Magn.

Altogether at the time of Mayor's excellent and comprehensive paper in 1914 (Contribution a l'étude des Uredinées de Colombie, Mem. Soc. Neuch. Sci. Nat. **5**: 442–599) at least eleven species had been reported rather than six as Mayor stated. Of the 158 species included in Mayor's paper, seven are not Colombian, that is they are only from Jamaica, Haití, or Martinique, and two are most certainly not rusts (*Aecidium amagense* Mayor and *Aecidium medellinense* Mayor which Sydow refers to *Woroninella*, Monog. Ured. **4**: 239, 1923) and several others are considered by us synonymous with others in the list. According to our disposition Mayor's paper includes 142 valid species of which 137 are there first reported, of which number 82 were described by him as new species.

* Contribution from the Department of Botany, Pennsylvania State College and the Department of Plant Pathology, Cornell University.

In 1915 Lindau (Orchis **9**: 177) reported *Uredo Scabies* Cooke from Colombia on *Vanilla planifolia*. In 1927 Kern and Chardon (Mycologia **19**: 268–276) reported ten additional species from Colombia, based on collections made by Chardon in April-June, 1926.

In 1927 Mr. R. A. Toro took a position in Colombia, first in connection with the Escuela de Agricultura at Medellín and later with the government at Bogotá. Since that time he has made many collections (upwards of eighty) and on the basis of these there are here reported seventeen additional species of which four are described as new species.

In 1929 Commissioner Carlos E. Chardon and Sr. J. A. B. Nolla were in Colombia as a part of an agricultural survey group from Porto Rico and took occasion to collect fungi securing more than 180 collections of rusts. Our studies of these reveal 28 species not heretofore reported from Colombia of which four are described as new. This makes a total of 204 species from the country.

Undoubtedly this falls far short of representing the complete rust-flora of this area. We do not have an equivalent area with which to make comparisons, California with only about one-third the area of Colombia has 237 known rusts. New England with about one-seventh the number of square miles of Colombia has 205 species. Pennsylvania and Cuba are about equal in size and approximate only one-tenth the area of Colombia and have 159 and 140 known species respectively. The island of Porto Rico, considerably less than one per cent of the area of Colombia has 181 known species. These figures are given because of some interest that may attach to them and not because of any significance they have. We do not know what the factors are that determine the presence or absence of these parasitic plants or their distribution. The number of host plants, the topography of the region, and the intensiveness with which collecting has been done, all enter into our present knowledge of rust populations. It is believed that the larger information which we are gradually building up regarding the rust-flora of various areas will come to be the foundation of a fuller understanding of the problems of distribution and ecology.

It is with pleasure that the authors acknowledge the assistance of several colleagues in their own institutions in these studies and also their indebtedness to numerous phanerogamic botanists for host determinations.

Family 1—Melampsoraceae

Uredinopsis Magn. Atti. Congr. Bot. Genova 167. 1893.

Uredinopsis macrosperma (Cooke) Magn. Hedwigia **43**: 122. 1904.
Uredinopsis Pteridis Diet. & Holw. Ber. Deuts. Bot. Ges. **13**: 331. 1895.
On *Pteridium aquilinum* (L.) Kuhn.
Antioquia: *Mayor.*
Known also from Canada, United States, Bermuda, Hawaii, Europe, Asia, and Africa.

Uredinopsis Mayoriana Diet. Mem. Soc. Neuch. Sci. Nat. **5**: 556. 1913.
On *Blechnum blechnoides* Lag.
Antioquia: *Mayor.*

Milesina Magn. Ber. Deuts. Bot. Ges. **27**: 325. 1909.

Milesina Blechni Syd. Ann. Myc. **8**: 491. 1910.
On *Blechnum occidentale* L.
Antioquia: *Mayor.*
Cundinamarca: *Mayor.*

Milesina columbiensis Diet.: Mayor. Mem. Soc. Neuch. Sci. Nat. **5**: 559. 1913.
On *Nephrolepis pendula* Raddi.
Antioquia: *Mayor.*

Milesina Dennstaedtiae Mayor. Mem. Soc. Neuch. Sci. Nat. **5**: 558. 1913.
On *Dennstaedtia rubiginosa* (Kaulf.) Moore.
Antioquia: *Mayor.*

Phakopsora Diet. Ber. Deuts. Bot. Ges. **13**: 334. 1895.

Phakopsora (?) Aeschynomensis Arth. Bull. Torrey Club **44**: 509. 1917.
Uredo Aeschynomensis Arth. Bot. Gaz. **39**: 392. 1905.
On *Aeschynomene americana* L.
Antioquia: *Mayor.*
On *Aeschynomene sensitiva* Sw.
Antioquia: *Mayor.*

*242. **Phakopsora columbiana** Kern & Whetzel sp. nov.

Uredinia hypophyllous, scattered, roundish, 0.2–0.4 mm. across, sometimes partly covered by the overarching epidermis, usually pulverulent, pale yellow, urediniospores broadly ellipsoid or obovate-globoid, 23–27 x 26–31 u, the wall cinnamon brown, prominently echinulate, 2 u or more thick, the pores obscure.

Telia hypophyllous, more or less gregarious, 0.1–0.3 mm. across, indehiscent, 4–7 cells thick; teliospores oblong, 19–24 x 36–48 u, the wall smooth, nearly colorless, about 1.5 u thick.

On *Croton gossypifolius* Vahl.

TOLIMA: Outskirts of Ibagué, Nos *555, 552 b*, June 20, 1929. (type).

This species differs from *P. Crotonis, P. mexicana,* and *P. dominicana,* all of which occur on *Croton,* in having teliospore-walls which are nearly colorless. The others are brown or smoky. There are also other spore and sorus characters which assist in making it stand by itself. The teliospores are distinctly catenulate and the apical wall of the outer spores is not or only slightly thicker.

*243. PHAKOPSORA VITIS (Thüm.) Syd. Hedwigia **38**: 141. 1899.

? *Uredo caucensis* Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 587. 1913.

On *Vitis* sp.

EL VALLE: Hacienda Bitaco, Cordillera Occidental, No. *479*, June 10, 1929.

Known also from southeastern United States, the West Indies, and Japan.

CRONARTIUM Fries, Obs. Myc. **1**: 220. 1815.

244. CRONARTIUM PRAELONGUM Wint. Hedwigia **26**: 24. 1887.

Cionothrix praelonga Arth. N. Am. Fl. **7**: 124. 1907.

On *Eupatorium conyzoides* Vahl.

CUNDINAMARCA: *Mayor.*

On *Eupatorium inulifolium* H. B. K.

CUNDINAMARCA: *Mayor.*

On *Eupatorium merifolium* Miller.

MAGDALENA: Santa Marta, H. H. Smith No. *669*, Dec. 20, 1898.

On *Eupatorium odoratum* L.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *643 a*, July 6, 1929; along Funza River trail to Hacienda San Antonio, No. *686*, July 11, 1929.

On *Eupatorium pomaderrifolium* Benth.

CUNDINAMARCA: *Mayor.*

On *Eupatorium popayanense* Hieron.
ANTIOQUIA: Boqueron, (R. A. Toro) No. *296*, Jan. 5, 1928.

On *Eupatorium tacotanum* Klatt.
EL VALLE: Mountains above Cali, No. *440*, June 9, 1920.
ANTIOQUIA: *Mayor.*

On *Eupatorium tequendamense* Hieron.
CUNDINAMARCA: *Mayor.*

On *Eupatorium thyrsigerum* Hieron.
EL VALLE: *Mayor.*
CUNDINAMARCA: *Mayor.*

On *Eupatorium* sp.
SANTANDER: *Chardon.*
ANTIOQUIA: *Mayor.*

Also known in southern Mexico southward to Panama.

This is a microcyclic species having only pycnia and telia. The species is notable for the variability of both its macroscopic and microscopic characters. It is possible that there may be races more or less distinguished by structural characters. The telial columns sometimes are only a few mm. in length but on other hosts may be a cm. or more long. The columns also vary greatly in diameter, some being only 25–40 u whereas others are 110–130 u. The spores also vary from 11–14 x 25–35 u up to 20–26 x 36–52 u. The basidiospores are also extremely variably some measuring 6–9 x 8–14 u and others 12–16 x 16–20 u.

COLEOSPORIUM Lev. Ann. Sci. Nat. III. **8**: 373. 1847.

COLEOSPORIUM BOCCONIAE (Mayor) Sydow, Monog. Ured. **4**: 343. 1923.

Aecidium Bocconiae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 560 1913.

On *Bocconia frutescens* L.
ANTIOQUIA: *Mayor.*

Evidently considered not an aecidium but the uredinial stage of a Coleosporium.

245. COLEOSPORIUM DOMINGENSE (Berk.) Arth. Am. Jour. Bot. **5**: 329 1918.

Coleosporium Plumierae Pat. Bull. Soc. Myc. Fr. **18**: 178. 1902.

On *Plumiera alba* L.
EL VALLE: Finca Piedra Grande south of Cali, No. *249*, May 14, 1929.

On *Plumiera* sp.
ANTIOQUIA: *Chardon.*
Known also from the West Indies, Guatemala, and Panama.

246. COLEOSPORIUM ELEPHANTOPODIS (Schw.) Thüm. Myc. Univ. **953**: 1878.
On *Elephantopus mollis* H. B. K.
EL VALLE: Finca las Cañas south of Jamundi, No. *276*, May 15, 1929.
TOLIMA: Along Combeima River near Ibagué, No. *574*. (date?)
CALDAS: Along Quindio River near Armenia, No. *715*. July 14, 1929.
ANTIOQUIA: *Chardon.*
On *Elephantopus scaber* L.
ANTIOQUIA: *Mayor.*
CUNDINAMARCA: *Mayor.*
On *Elephantopus* sp. C. F. Baker *86*.
On *Pseudoelephantopus spicatus* (Juss.) Rohr.
EL VALLE: Cauca River near Cali, No. *315*, May 21, 1929; mts. above Cali, No. *446*, June 9, 1929.
Known also from southern United States, Central America and the West Indies.

247. COLEOSPORIUM EUPATORII Arth. Bull. Torrey Bot. Club **33**: 31. 1906.
On *Eupatorium macrophyllum* L.
CALDAS: Along Quindio River near Armenia, No. *719*, July 14, 1929.
ANTIOQUIA: *Mayor.*
Known also from Central America and the West Indies.

248. COLEOSPORIUM IPOMOEAE (Schw.) Burr. Bull. Ill. Lab. Nat. Hist. **2**: 217. 1885.
Coleosporium Fischeri Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 550. 1913.
On *Ipomoea* aff. *caloneura* Meiss.
ANTIOQUIA: *Mayor.*
On *Ipomoea* sp.
CALDAS: Ravines near Armenia, No. *541*. June 19, 1929.
ANTIOQUIA: *Mayor.*
On *Jacquemontia* sp.
ANTIOQUIA: Bello, (R. A. Toro) No. *288*, Nov. 4, 1927.
On *Quamoclit angulata* (Lam.) Bojer.

ANTIOQUIA: *Mayor.*
CUNDINAMARCA: *Mayor.*
On *Quamoclit coccinea* (L.) Moench.
EL VALLE: Hacienda El Hitaco between Cerrito and Palmira, No. *361*, May 23, 1929.
Known also in eastern United States, Mexico, Central America, and the West Indies.

Family 2—PUCCINIACEAE

CHRYSOCELIS Lagerh. & Diet. Mem. Soc. Neuch. Sci. Nat. **5**: 542. 1913.

CHRYSOCELIS LUPINI Lagerh. & Diet. Mem. Soc. Neuch. Sci. Nat. **5**: 542. 1913.
On *Lupinus* sp.
CUNDINAMARCA: *Mayor.*
Known also in Costa Rica.

CEROTELIUM Arth. Bull. Torrey Bot. Club. **33**: 30. 1906.

249. CEROTELIUM DESMIUM (B. & Br.) Arth. N. Am. Fl. **7**: 698. 1925.
Uredo Gossypii Lagerh. Jour. Myc. **7**: 48. 1891.
On *Gossypium barbadense* L.
ANTIOQUIA: Fredonia (R. A. Toro) No. *237*, July 31, 1927.
BOLIVAR: *Chardon.*
On *Gossypium hirsutum* L.
CUNDINAMARCA: Granja La Esperanza, No. *590*, June 23, 1929.
On *Gossypium peruvianum* Cav.
EL VALLE: Buenaventura, No. *222*, May 8, 1929.
ANTIOQUIA: *Chardon.*
On *Gossypium* cf. *religiosum* L.
ANTIOQUIA: *Mayor.*
Known also in Florida, the West Indies, India, Java, New Guinea, and the Philippines.

250. CEROTELIUM FICI (Cast.) Arth. Bull. Torrey Bot. Club **44**: 509. 1917.
On *Ficus Carica* L.
ANTIOQUIA: Titiribi (R. A. Toro) No. *278*, Nov. 8, 1927.
EL VALLE: Finca Piedra Grande, south of Cali, No. *247*, May 14, 1929.

CALDAS: Across river north of Cartago, No. *378*, May 30, 1929.
NARIÑO: Berruecos, (L. Pardo Navarro) No. *571*, March, 1930.
ANTIOQUIA: *Chardon.*

Known also in southern United States, central America, the West Indies and other tropical regions throughout the world.

TRANZSCHELIA Arth. Result. Sc. Congr. Bot. Vienne 340. 1906.

251. TRANZSCHELIA PUNCTATA (Pers.) Arth. Result. Sci. Congr. Bot. Vienne 340. 1906.

Puccinia Pruni-spinosae Pers. Syn. Fung. 226. 1801.

On *Amygdalus persica* L.

EL VALLE: Mountains above Cali, No. *436*, June 9, 1929.
CUNDINAMARCA: *Mayor.*
ANTIOQUIA: *Chardon.*

Known also from North America, Europe, Africa, and Australia.

SPIRECHINA Arth. Jour. Myc. **13**: 30. 1907.

*252. **Spirechina columbiensis** Kern and Whetzel sp. nov.

Pycnia epiphyllous, few in crowded groups, prominent, becoming blackish with age; subcuticular, flattened hemispherical or mammaloid, 112–160 u broad by 80–130 u high, pycniospores numerous.

Uredinia at first (primary) epiphyllous, few surrounding the pycnia sori irregularly roundish, bullate, ruptured epidermis not well shown, soon rupturing, pulverulent, dirty white or yellowish; urediniospores subglobose or ellipsoid, 18–21 x 23–32 u, the echinulate, the pores obscure.

Telia hypophyllous, scattered, small, about 0.1 mm. across, soon naked, pulverulent, pale yellow or whitish; teliospores narrowly obovate or oblong, 15–19 x 42–58 u, usually germinating upon maturity, the wall nearly or quite colorless, thin, about 1 u, thicker above, up to 3–5 u, smooth; urediniospores often intermixed.

This new species differs from *S. Rubi-urticifolii* in having teliospores with walls thicker above; from *S. cundinamarcensis* and *S. quitensis* in the much smaller size of the teliospores; and from *S. variabilis* in the smooth walls of the teliospores as well as in other less conspicuous characters. The teliospore characters ally this species with *S. Lagerheimii* but the spores are larger being 42–58 u long as compared with 33–42 u. Other spore forms of *S. Lagerheimii* are un known and further comparisons cannot be made.

On *Rubus* sp.

ANTIOQUIA: Titiribi (R. A. Toro) No. *266*, Aug. 8, 1927. (type).

Spirechina cundinamarcensis (Mayor) comb. nov.

Uromyces cundinamarcensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 452. 1913.

On *Rubus peruvianus* Fritsch.

CUNDINAMARCA: *Mayor.*

Spirechina Lagerheimii (P. Magn.) comb. nov.

Uromyces Laberheimii P. Magn. Ber. Deuts. Bot. Ges. **14**: 377. 1896.

On *Rubus glaucus* Benth.

TOLIMA: *Mayor.*

On *Rubus* sp.

ANTIOQUIA: *Mayor.*

253. SPIRECHINA LOESENERIANA (P. Henn.) Arth. Jour. Myc. **13**: 30. 1907.

Uromyces Loesenerianus Sydow, Monog. Ured. **2**: 202. 1910.

On *Rubus urticifolius* Poir.

ANTIOQUIA: Salgar (R. A. Toro) No. *323*, April 4, 1928.

ANTIOQUIA: *Mayor.*

Known also from Central America.

The spirally marked urediniospores differentiate this species from the other Colombian species of this genus.

Spirechina quitensis (Largerh.) comb. nov.

Uromyces quitensis Lagern. Bull. Myc. Soc. France **11**: 213. 1895.

On *Rubus* sp.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

254. **Spirechina Rubi-urticifolii** (Mayor) comb. nov.

Uromyces Rubi-urticifolii Mayor, Mem. Soc. Sci. Nat. **5**: 454. 1913.

On *Rubus urticifolius* Poir.

ANTIOQUIA: *Mayor.*

On *Rubus* sp.

ANTIOQUIA: Medellín, (R. A. Toro) No. *270*. Dec. 29, 1927.

ANTIOQUIA: *Mayor.*

255. **Spirechina variabilis** (Mayor) comb. nov.

Uromyces variabilis Mayor, Mem. Soc. Neuch Sci. Nat. **5**: 457. 1913.

On *Rubus* sp.

CUNDINAMARCA: Ravine between Cerro Monserrate and Guadalupe, No. *610*, June 25, 1929.
CUNDINAMARCA: *Mayor.*

The variable character of the teliospores in this species is striking. In some spores the walls are smooth over the apex, and not much thickened while in others the walls at the apex are thicker and lobed or with numerous rounded projections.

PHAGMIDIUM Link, Ges. Nat. Freunde Berlin Mag. **7**: 30. 1815.

256. PHRAGMIDIUM DISCIFLORUM (Tode) James, Contr. U. S. Nat. Herb. **3**: 276. 1895.

On *Rosa* sp. (cultivated)
CUNDINAMARCA: Chapinero (R. A. Toro) No. *413*, July 31, 1929: *Mayor.*

Known also from North America, Europe, western Asia, and Hawaii.

A widespread rust on cultivated roses, especially those having large and firm leaflets. Our specimen has only unrediospores present which is the case for the specimen reported by Mayor.

PROSPODIUM Arth. Jour. Myc. **13**: 31. 1907.

PROSPODIUM APPENDICULATUM (Wint.) Arth. Jour. Myc. **13**: 31. 1907.
Puccinia appendiculata Wint. Flora **67**: 262. 1884.

On Bignoniaceae.
MAGDALENA: C. F. Baker No. *93.*

Known also from central Mexico and the West Indies.

Reported by Earle (Bull Torrey Club **26**: 632. 1899). Dietel who studied these specimens says the appendages are poorly developed or wanting but that he does not doubt this determination.

Prospodium Von Gunteni (Mayor) comb. nov.

Puccinia Von Gunteni Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 490. 1913.

On *Lippia americana* L.
BOLIVAR: *Mayor.*

This species resembles *P. Lippiae* Speg. but has smaller uredinio-spores (20–24 u as compared with 23–27 u) and thinner walls (3–5 u as against 5–7 u), and the teliospore-pedicels have only one whorl of appendages as compared with three or four whorls.

DICHEIRINIA Arth. N. Am. Fl. **7**: 147. 1907.

257. DICHEIRINIA BINATA (Berk.) Arth. N. Am. Fl. **7**: 147. 1907.
Uredo Cabreriana Kern & Kellerm. Jour. Myc. **13**: 25. 1907.
On *Erythrina glauca* Willd.
ANTIOQUIA: Medellín (R. A. Toro) No. 181, March 19, 1927; *Chardon.*
EL VALLE: Banks of Cauca River near Cali No. *320*, May 21, 1929.

RAVENELIA Berk. Gard. Chron. **10**: 132. 1853.

*258. RAVENELIA INDIGOFERAE Tranz. Hedwigia **33**: 369. 1894.
On *Indigofera subulata* Vahl.
ANTIOQUIA: Medellín (R. A. Toro) No. *178*, March 11, 1927.
On *Indigofera suffruticosa* Mill.
EL VALLE: Banks of Cauca River, No. *313*, May 21, 1929.
Known also from Mexico, the West Indies, and Bermuda. This is the first report of this species from Colombia.

259. RAVENELIA INGAE (P. Henn.) Arth. N. Am. Fl. **7**: 12. 1907.
Uromyces porcensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 459. 1913.
On *Inga adenophylla* Pittier.
ANTIOQUIA: Medellín, (R. A. Toro) No. *190*, April 20, 1927.
On *Inga edulis* Mart.
ANTIOQUIA: *Chardon.*
On *Igna* cf. *Ingoides* (Rich.) Willd.
ANTIOQUIA: *Mayor.*
On *Inga* sp.
EL VALLE: Mountains above Cali, Nos. *437*, *448*, June 9, 1929; Hacienda Bitaco, Cordillera Occidental, No. *490*, June 11, 1929.
ANTIOQUIA: *Chardon.*
Known also from Eastern Mexico and the West Indies.

RAVENELIA MAINSIANA Arth. & Holw. Am. Jour. Bot. **5**: 426. 1918.
On *Mimosa alba* H. B. K.
ANTIOQUIA: *Chardon.*

RAVENELIA MIMOSAE-SENSITIVAE P. Henn. Hedwigia Beibl. **35**: 246. 1896.
On *Mimosa sensitiva* L.
ANTIOQUIA: *Mayor.*

*260. RAVENELIA PITHECOLOBII Arth. Bot. Gaz. **39**: 394. 1905.

On *Pithecolobium lanceolatum* Benth. (genus name also written *Pithecellobium*).

EL VALLE: Near Santa Ana between Cartago and the Cauca River, No. *374* May 29, 1929.

Known also from southern Florida, central Mexico, and Cuba.

The first report of this species from Colombia.

UROMYCES Unger, Exanth. Pff. 277. 1833.

UROMYCES AFFINIS Wint. Hedwigia **24**: 259. 1885.

Uredo hypoxidis P. Henn. Hedwigia **40**: 173. 1901.

On *Hypoxis decumbens* L.

ANTIOQUIA: *Mayor.*

UROMYCES ANTIOQUIENSIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 445. 1913.

On *Rhynchospora polyphylla* Vahl.

ANTIOQUIA: *Mayor.*

261. UROMYCES APPENDICULATUS (Pers.) Fries, Summa. Veg. Scand. 514. 1849.

On *Phaseolus lunatus* L.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *648*, July 6, 1929.

ANTIOQUIA: *Chardon.*

EL VALLE: Finca Las Cañas, south of Jamundi, No. *280 a*, May 25, 1929.

On *Phaseolus vulgaris* L.

ANTIOQUIA: Machado (R. A. Toro) No. *203*, May 20, 1927.

EL VALLE: Garden at San Fernando, No. *298*; La Paz, Andalucia, No. *350*, June 7, 1929.

On *Vigna luteola* (Jacq.) Benth.

ANTIOQUIA: *Mayor.*

*262. UROMYCES ASCLEPIADIS (Schw.) Barth. Handb. N. Am. Ured. 54. 1928.

On *Asclepias curassavica* L.

EL VALLE: Candelaria, No. *328*, May 21, 1929.

Known also in Canada, United States, Guatemala, and the West Indies.

This is the first report from Colombia.

263. UROMYCES BIDENTICOLA (P. Henn.) Arth. Mycologia **9**: 71. 1917.

On *Bidens pilosa* L.

CUNDINAMARCA: Granja La Esperanza, No. *586*, June 23, 1929.

ANTIOQUIA: *Chardon.*

On *Bidens squarrosus* H. B. K.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *645*, July 6, 1929; *Mayor.*

Known also from the West Indies and Martinique.

This is a macrocyclic species of which uredinia and telia are known. It is not to be confused with *U. Bidentis* Lagerh., a microcyclic species which is known on *Bidens pilosa*. Mayor (p. 470) reported this species from Colombia on *B. pilosa* and *B. squarrosus* but called it *U. Bidentis* in error. Reference to the host *B. bipinnatus* (Mycologia **19**: 271. 1927) as from Colombia is also an error as that specimen was from Jamaica and not from Colombia. The microcyclic species *U. Bidentis* is also reported from Colombia in this paper.

*264. UROMYCES BIDENTIS Lagerh. Bull. Soc. Myc. Fr. **11**: 213. 1895.

On *Bidens pilosa* L.

EL VALLE: Above Cali, No. *450*, June 9, 1895.

Known also from Martinique and the West Indies.

This is the first report of this microcyclic species from Colombia. See note under *Uromyces bidenticola.*

*265. UROMYCES CESTRI (Mont.) Lev. Ann. Sci. Nat. III. **8**: 371. 1847.

On *Cestrum parviflorum* Dun.

BOYACÁ: Duitama, (R. A. Toro) No. *406*, Feb. 20, 1929.

On *Cestrum* sp.

ANTIOQUIA: (R. A. Toro) No. *366*, Salgar, July 20, 1926.

Known also in the West Indies.

UROMYCES CISSAMPELIDIS Dietel; Earle, Bull. Torrey Club. **26**: 632 1899.

On *Cissampelos* sp.

MAGDALENA: Near Santa Marta, C. F. Baker No. *83.*

This has not since been reported from Colombia.

UROMYCES COLUMBIANUS Mayor, Mem. Soc. Neuch. Sci Nat. **5**: 467. 1913.

On *Melanthera aspera* (Jacq.) Steudel.

ANTIOQUIA: *Chardon.*
CALDAS: *Mayor.*

On *Melanthera aspera* (Jacq.) Steudel var. *canescens* (O. Kuntze) Thellung.
ANTIOQUIA: *Mayor.*

Known also in the West Indies, Central America, and Trinidad.

266. UROMYCES COMMELINAE (Speg.) Cooke, Trans. Roy Soc. Edinb. **31**: 342. 1888.

On *Tradescantia cumanensis* Kunth.
ANTIOQUIA: Angelopolis (R. A. Toro) No. *207*, July 27, 1927.

On *Tradescantia multiflora* L.
ANTIOQUIA: *Mayor.*

Known also from Southern Brazil, Argentina, southern United States, Porto Rico, Africa and Japan.

267. UROMYCES CRUCHETI Mayor, Mem. Soc. Neuch. Sci. Nat **5**: 464. 1913.

On *Borreria tenella* (H. B. K.) Cham. & Schlecht.
ANTIOQUIA: *Mayor.*

Un Rubiaceae undet.
ANTIOQUIA: Guarnes (R. A. Toro) No. *265*, Nov. 3, 1927

UROMYCES DOLICHOLI Arth. Bull. Torrey Club **33**: 27. 1906.

On *Rhynchosia* cf. *longeracemosa* Mart. & Gall.
ANTIOQUIA: *Mayor.*

*268. UROMYCES FABAE (Pers.) DeBary, Ann. Sci. Nat. IV. **20**: 80. 1865.

On *Vicia Faba* L.
ANTIOQUIA: Guarnes (R. A. Toro) No. *263*, Nov. 3, 1927.
Known also in the United States, Mexico, Europe, and Asia.
This is the first report from South America.

UROMYCES GURANIAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 466. 1913.

On *Gurania* sp.
ANTIOQUIA: *Mayor.*

UROMYCES HEDYSARI-PANICULATI (Schw.) Farl.; Ellis. N. Am. Fungi 246. 1879.

Uredo amagensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 584. 1913.

On *Desmodium mexicanum* Sweet.

TOLIMA: Quindío, Andes Centrales (coll. by Therese de Baviere).

On *Desmodium tortuosum* (Sw.) DC.

ANTIOQUIA: *Mayor.*

Known also in the United States, Mexico, Central America, and the West Indies.

Although Mayor maintained that his collections which he described as a new species, *Uredo amagensis,* were different from *Uromyces Hedysari-paniculati* we have nevertheless united them.

UROMYCES HYPERICI-FRONDOSI (Schw.) Arth. Bull. Minn. Acad. Sci. **22**: 15. 1883.

On *Hypericum* aff. *uliginoso* H. B. K.

ANTIOQUIA: *Mayor.*

UROMYCES IRESINES Lagerh. Syd. Monog. Ured. **2**: 227. 1910.

On *Iresine paniculata* (L.) Kuntze.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

269. UROMYCES LEPTODERMUS Syd.; Syd & Butler, Ann. Myc. **4**: 430. 1906.

On *Lasciacis ruscifolia* (H. B. K.) Hitchc.

ANTIOQUIA: Medellín (R. A. Toro) No. *179,* March 11, 1927.

On *Lasciacis sorghoidea* (Desv.) Hitchc. & Chase.

EL VALLE: Above Cali, No. *439,* June 9, 1929: near La Cumbre, Cordillera Occidental, No. *514,* June 12, 1929.

On *Panicum barbinode* Trin.

ANTIOQUIA: *Chardon.*

On *Panicum lanatum* Sw.

ANTIOQUIA: *Mayor.*

Known also from the West Indies and India.

It seems probable that the specimen on *Panicum lanatum* called *Uredo Henningsii* by Mayor (p. 578) belongs here. The characters of the uredospores which he gives would not admit it to *U. Henningsii* which is a synonym of *Puccinia substriata.*

UROMYCES MANIHOTIS P. Henn. Hedwigia **34**: 90. 1895.

On *Manihot* sp.

MAGDALENA: C. F. Baker *84.*

Dietel, who determined some rusts collected by Baker in Santa Marta, Colombia and reported by Earle (Bull. Torrey Club. **26**: 632.

1899), status under *Uromyces Manihotis* that "Hennings has only described the teleutospores but on specimens received from him I also find the uredospores which correspond exactly with this No. *84* (C. F. Baker)". The type locality of *U. Manihotis* is Brazil. In Saccardo Syll. Fung. *Uromyces manihoticola* P. Henn., also from Brazil, is considered a synonym.

In the Earle paper no host is given for this species. It is here assumed to be *Manihot* sp. This is the only report of this species from Colombia.

UROMYCES MAYORII Franz.; Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 463. 1913.

On *Euphorbia orbiculata* H. B. K.

CUNDINAMARCA: *Mayor.*

270. UROMYCES MEGALOSPERMUS Speg. Anal. Mus. Nac. Buenos Aires 218. 1899.

On *Tessaria integrifolia* Ruiz & Pav.

ANTIOQUIA: Fredonia (R. A. Toro) No. *242*, July 31, 1927; *Chardon.*
ANTIOQUIA: *Mayor.*

*271. UROMYCES NERVIPHILUS (Grongnot) Barth. Handb. N. Am. Ured. 69. 1928.

On *Trifolium repens* L.

CUNDINAMARCA: Zipaquira (R. A. Toro) No. *407*, March 20, 1929.
BOYACA: Duitama (R. A. Toro) No. *411*, Feb. 20, 1929.

Known also from Canada, the United States and France.

This species is very much like *Uromyces oblongus* Vize but differs in having the sori specially on the petioles and nerves and somewhat larger teliospores. Apparently the first report from South America.

*272. UROMYCES NEUROCARPI Diet. Hedwigia **34**: 292. 1895.

On *Martiusia rubiginosa* (Juss.) Britton.

ANTIOQUIA: Salgar, (R. A. Toro) No. *368*, July 20, 1928.

Known also from Mexico and the West Indies. Appears to be the first report from Colombia.

UROMYCES PHTHIRUSAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 448. 1913.

On *Phthirusa pyrifolia* (H. B. K.) Eichler.

ANTIOQUIA: *Mayor.*

UROMYCES POLYMNIAE (P. Henn.) Diet. & Holw. Bot. Gaz. **31**: 327. 1901.

On *Polymnia glabrata* DC.

CUNDINAMARCA: *Mayor.*

273. UROMYCES PROMINENS (DC.) Pass., Rab. Fungi Eur. 1795. 1873.

Uromyces euphorbiicola Tranz. Ann. Myc. **8**: 8. 1910.

On *Chamaesyce brasiliense* (Lam.) Small.

ANTIOQUIA: Fredonia, (R. A. Toro) No. *240*, July 31, 1927.

On *Chamaesyce hirta* (L.) Millsp. (*Euphorbia pilulifera* L.)

EL VALLE: Finca Rincón, South of Cali, No. *254* date ?; between Cerrito and Palmira, No. *360*, May 23, 1929; near Rozo, northwest of Palmira, No. *397*, May 31, 1929.

ANTIOQUIA: *Chardon.*

ANTIOQUIA: *Mayor* (as *Euphorbia pilulifera* L.)

Mayor states that this species was reported in Sydow's Monograph (vol. 2, p. 161, 1910) prior to the publication of his paper but does not give any information as to the date or collector. Sydow indicates that the Colombian specimen was collected by Karsten. Although many of Karten's specimens are at Kew this one could not be found there.

UROMYCES SMILACIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 448. 1913.

On *Smilax* sp.

ANTIOQUIA: *Mayor.*

*274. UROMYCES SOLANI Diet. & Howl. Bot. Gaz. **24**: 24. 1897.

On *Solanum* sp.

CUNDINAMARCA: Along road to Salto de Tequendama, No. *675*, July 6, 1929.

Heretofore known only from Central Mexico and Guatemala.

Our specimen has only uredinia.

*275. UROMYCES URBANIANUS P. Henn. Hedwigia **36**: 213. 1897.

On *Oryctanthus botryostachys* Eichl.

EL VALLE: Along Cauca River, No. *435*, June 8, 1929.

Known also from Salvador and Trinidad.

This species is evidently related to *Uromyces Phtirusae* but has larger teliospores which are verrucose with warts sometimes arranged in rows whereas *U. Phtirusae* is prominently striate with ridges.

PUCCINIA Link, in Willd. Sp. Pl. **62**: 67. 1825.

276. PUCCINIA ABREPTA Kern, Mycologia **11**: 140. 1919.

On *Cyperus* sp.

CALDAS: Ravines near Calarcá along Armenia-Ibagué road, No. *707*, July 13, 1929.

ANTIOQUIA: *Chardon.*

Otherwise known only from the type locality in Costa Rica.

PUCCINIA ANCIZARI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 525. 1913.

On *Baccharis nitida* Pers.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

Known also from Guatemala.

277. PUCCINIA ANODAE Syd. Monog. Ured. **1**: 475. 1903.

On *Anoda cristata* (L.) Schlecht.

EL VALLE: Cali, E. P. Killip (phan. spec.) No. *6200*, June 1–2, 1922.

On *Anoda hastata* Cav.

ANTIOQUIA: *Mayor.*

Known also in southern Mexico and Central America.

278. PUCCINIA ARECHAVALETAE Speg. Anal. Soc. Ci. Argent **12**: 67. 1881.

On *Cardiospermum* sp.

TOLIMA: Front of Girardot, (R. A. Toro) No. *552*, Feb. 10, 1929.

On *Serjania* (?) *brevipes* Benth.

EL VALLE: Near Buga, No. *428*, June 5, 1929.

On *Serjania membranacea* Splitg.

EL VALLE: Thickets near San Pedro, north of Buga, No. *423*, June 4, 1929.

On *Serjania* sp.

ANTIOQUIA: *Mayor.*

On Sapindaceae sp.

CUNDINAMARCA: *Mayor.*

Known also in southern United States, Mexico, and the West Indies.

*279. PUCCINIA ATRA Diet. & Holw. Bot. Gaz. **24**: 29. 1897.

On *Paspalum prostratum* Scrib. & Merr.

CUNDINAMARCA: Salto de Tequendama, Nos. *663*, *665*, July 6, 1929.

Known also from Brazil and from Texas and New Mexico southward to Guatemala.

280. Puccinia Baccharis-rhexioides Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 517. 1913.

On *Baccharis rhexioides* H. B. K.

El Valle: Finca Las Cañas south of Jamundi, No. *273*, May 15, 1929.

Caldas: Ravines near Armenia, No. *546*, June 19, 1929.

Antioquia: *Mayor.*

Puccinia barranquillae Mayor. Mem. Soc. Neuch. Sci. Nat. **5**: 533. 1913.

On *Spilanthes urens* Jacq.

Bolivar: *Mayor.*

Puccinia Becki Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 509. 1913.

On *Vernonia Cotoneaster* (Wild.) Less.

Cundinamarca: *Mayor.*

Known also from Jamaica.

281. Puccinia Bimbergi Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 478. 1913.

On *Heliopsis buphthalmoides* (Jacq.) Dunal.

Antioquia: La Camelia, Angelopolis (R. A. Toro) No. *289*, Jan. 22, 1928.

Antioquia: (Same locality as the preceding) *Mayor.*

Puccinia Bocconiae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 478. 1913.

On *Bocconia frutescens* L.

Antioquia: *Mayor.*

Puccinia bogotensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 480. 1913.

On *Geranium multiceps* Turez.

Cundinamarca: *Mayor.*

A microcyclic species with large teliospores (18–24 x 65–87 u).

Puccinia Bombacis Deitel; Earle, Bull. Torrey Club **26**: 632. 1899.

On *Bombax* sp.

Magdalena: Near Santa Marta, C. F. Baker *80.*

Known only from the type locality.

282. Puccinia caeomatiformis Lagerh., Sydow Monog. **1**: 24. 1902.

On *Baccharis floribunda* H. B. K.

Cundinamarca: Slopes of Salto de Tequendama No. *644*, July 6,

1929, ravines between Cerro Monserrate and Guadalupe above Bogotá, No. *599*, June 25, 1929.

On *Baccharis polyantha* H. B. K.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

This is a very interesting microcyclic species because of the exceptionally large spores which measure 25–42 x 70–135 u. There is probably no known Puccinia with larger teliospores. The spores germinate upon maturity and the sporidia are comparatively large being oval and measuring 18–21 u long. The pedicel is sometimes 28 u broad above and often as long as the spore. The original description does not mention pycnia but our specimens have them few in number, gregarious, on the spots opposite the telia. The pycnia are about 200 u broad by 250 u high.

PUCCINIA CAMELIAE (Mayor) Arth. Mycologia **7**: 227. 1915.

Uredo Cameliae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 578. 1913.

On *Chaetochloa scandens* (Schrad.) Scribn. & Merr. (*Setaria scandens* Schrad.)

ANTIOQUIA: *Mayor.*

Known also from Brazil, Texas, and the West Indies.

*283. PUCCINIA CANALICULATA (Schw.) Lagerh. Tromsö Mus. Aarsh. **17**: 51. 1894.

On *Cyperus ferax* L. C. Rich.

EL VALLE: Near Buenaventura, No. *220*, May 8, 1929.

Known also in Bolivia, British Guiana, the United States, Mexico, Central America and the West Indies.

284. PUCCINIA CANNAE Wint.) P. Henn. Hedwigia **41**: 105. 1902.

On *Canna coccinea* Miller.

ANTIOQUIA: *Mayor.*

On *Canna* sp.

CALDAS: Along Quindio River near Armenia No. *712*, July 14, 1929.

A common rust in Central America and the West Indies.

PUCCINIA CAPSICI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 501. 1913.

On *Capsicum* cf. *baccatum* L.

TOLIMA: *Mayor.*

285. Puccinia Cenchri Diet. & Holw.; Holway, Bot. Gaz. **24**: 28. 1897.

On *Cenchrus echinatus* L.

El Valle: Along river at Buga, No. *430*, June 5, 1929.

Antioquia: *Mayor.*

Bolivar: *Chardon.*

On *Pennisetum bambusiforme* (Tourn.) Hemsl.

Antioquia: Granizales (R. A. Toro) No. *276*, Sept. 11, 1927.

Known also from Brazil, United States, Mexico, Central America, and the West Indies.

This is the first report from South America on a species of *Pennisetum.*

*286. Puccinia Chaetochloae Arth. Bull. Torrey Club **34**: 585. 1907.

On *Paspalum macrophyllum* H. B. K.

El Valle: Finca Santa Bárbara, Palmira, No. *287*, May 16, 1929.

Known also from Florida, and the West Indies.

*287. Puccinia Clematidis (DC.) Lagerh. Tromsö Mus. Aarsh. **17**: 54. 1895.

On *Bromus unioloides* H. B. K.

Cundinamarca: Slopes of Salto de Tequendama, No. *647*, July 6, 1929.

On *Triticum aestivum* L.

El Valle: Above Cali, No. *445*, June 9, 1929.

Known also from Chile, Bolivia, Argentina, North America, Europe, Asia, and Australia; the distribution is coextensive with the cultivation of wheat.

In North America this rust has a list of 150 species of telial hosts and over 60 species of aecial hosts.

288. Puccinia conoclinii Scmy.; Burrill, Bot. Gaz. **9**: 191. 1884.

Uredo Agerati Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 595. 1913.

Uredo Eupatorium Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 596. 1913.

On *Ageratum conyzoides* L.

Caldas: Quindio River, near Armenia, No. *741*, July 14, 1929.

Antioquia: *Mayor.*

On *Ageratum conyzoides* L. var. *inaequipaleaceum* Hieron.

Cundinamarca: *Mayor.*

On *Eupatorium densum* Benth.

CUNDINAMARCA: Slopes of Salto de Tequendama, No. *649*, July 6, 1929.

On *Eupatorium guadalupense* Spreg.

ANTIOQUIA: *Mayor.*

On *Eupatorium iresinoides* H. B. K.

ANTIOQUIA: *Mayor.*

On *Eupatorium Vargassianum* DC.

ANTIOQUIA: *Mayor.*

Known also in the United States, Mexico, Central America, and the West Indies.

PUCCINIA CONVOLVULACEAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 488. 1913.

On Convolvulaceae.

SANTANDER: *Mayor.*

289. PUCCINIA CRASSIPES Berk. & Curt. Grevillea **3**: 54. 1874.

Puccinia Ipomoeae-panduratae Sydow. Monog. Ured. **1**: 323. 1902.

On Ipomoeae.

CUNDINAMARCA: Girardot (R. A. Toro) No. *405*, Feb. 15, 1929.

ANTIOQUIA: *Mayor.*

ANTIOQUIA: *Chardon.*

On *Ipomoeae* aff. *caloneura* Meiss.

ANTIOQUIA: *Mayor.*

Known also in the southern United States, Mexico, Central America and the West Indies.

290. PUCCINIA CUNDINAMARCENSIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 536. 1913.

On *Verbesina verbascifolia* Walp.

CUNDINAMARCA: *Mayor.*

On *Verbesina* (?) *nudipes* Blake.

EL VALLE: Hacienda Bitaco, No. *480*, June 10, 1929.

On *Verbesina* sp.

EL VALLE: Above Cali, No. *449*, June 9, 1929.

*291. PUCCINIA CYNODONTIS Lacroix, *in* Desmaz. Pl. Crypt. II. 655. 1859.

On *Capriola dactylon* (L.) Kuntze.

ANTIOQUIA: Medellín (R. A. Toro) No. *184*, March 5, 1927.

Widely distributed on all the continents; in South America reported also from Brazil. This is the first report from Colombia.

*292. Puccinia Cyperi Arth. Bot. Gaz. **16**: 226. 1891.
On *Cyperus caracasanus* Kunth.
El Valle: Banks of Cauca River near Cali, No. *312*, May 21, 1929.
On *Cyperus globulosus* Anbl.
El Valle: Road from Cali to Palmira, No. *230*, May 11, 1929.
Known also from Brazil, Bolivia, United States, Mexico, Central America, and the West Indies. Apparently the first report from Colombia.

293. Puccinia Dichoromenae (Arth.) Jackson, Trans. Birth. Myc. Soc. **13**: 16. 1928.
Uredo Dichromenae Arth. Bull. Torrey Club **33**: 31. 1906.
On *Dichromena ciliata* Vahl.
Caldas: Along Quindio River, near Armenia, No. *725*, July 14, 1929.
On *Dichromena polystachys* Turril.
Antioquia: *Mayor.*
On *Dichromena radicans* Cham. & Schlecht.
Antioquia: *Mayor.*
On *Dichromena* sp.
Tolima: Along Combeima River, No. *566*, June 20, 1929.
Known also from Bermuda and the West Indies.

Puccinia doloris Speg. Anal. Soc. Cien. Arg. **12**: 23. 1881.
On *Erigeron* cf. *uliginosus* Benth.
Antioquia: *Mayor.*
Known also from the type locality in Argentina.

Puccinia dubia Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 482. 1913.
On Ampelidaceae.
Antioquia: *Mayor.*

*294. Puccinia epiphylla (L.) Wettst. Verh. Zool.—Bot. Ges. Wein. **35**: 541. 1886.
Puccinia poarum Niels. Bot. Tidsskr. III. **2**: 34. 1877.
On *Poa annua* L.
Cundinamarca: La Picota Exp. Farm., South of Bogotá, No. *628*. June 30, 1929.
Boyacá: Duitama (R. A. Toro) No. *410*, Feb. 20, 1929.
On *Poa pratensis* Nielson.
Cundinamarca: La Picota Exp. Farm., south of Bogotá, Nos. *616*, *631*, June 30, 1929.
Known also from Bolivia, Chile, Brazil, throughout continental North America, Europe, and Japan.

PUCCINIA EUPATORII Diet. Hedwigia **36**: 32. 1897.

On *Eupatorium ballotifolium* H. B. K.

ANTIOQUIA: *Mayor.*

PUCCINIA EUPATORIICOLA Mayor. Mem. Soc. Neuch. Sci. Nat. **5**: 513. 1913.

On *Eupatorium pycnocephalum* Less.

CUNDINAMARCA: *Mayor.*

On *Eupatorium Schiedeanum* Less.

ANTIOQUIA: *Mayor.*

PUCCINIA EUPATORII-COLUMBIANI Mayor. Mem. Soc. Neuch. Sci. Nat. **5**: 514. 1913.

On *Eupatorium columbianum* Herring.

ANTIOQUIA: *Mayor.*

PUCCINIA EVADENS Harkn. Bull. Calif. Acad. **1**: 34. 1884.

On *Baccharis cassinaefolia* DC.

ANTIOQUIA: *Chardon.*

Known also in southwestern United States, Mexico, and the West Indies.

*295. PUCCINIA FILOPES Arth. & Holw. Mycologia **10**: 131. 1918.

On *Buettneria carthaginensis* Jacq.

EL VALLE: Forest at Hacienda Riopaila, south of Zarzal, No. *382*, May 31, 1929.

Known also in Central America. Appears to be the first report of the species from Colombia.

PUCCINIA FIMBRYSTILIDIS Arth. Bull. Torrey Club **33**: 28. 1906.

On *Fimbrystilis annua* (All.) H. & S.

ANTIOQUIA: *Mayor.*

PUCCINIA FUHRMANNI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 507. 1913.

On *Justicia* cf. *secunda* Vahl. cf. var. *intermedia* (Nees) Thellung.

ANTIOQUIA: *Mayor.*

*296. PUCCINIA GLUMARUM (Schum.) Erikks. & Henn., Zeits. Pflanzenkr. **4**: 197. 1894.

On *Triticum aestivum* L. var. *kota.*

CUNDINAMARCA: La Picota Exp. Farm. south of Bogotá, No. *635*, June 30, 1929.

Also in Chile, Ecuador, the United States, Mexico, Europe, Africa, and Japan.

PUCCINIA GONZALEZI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 502. 1913.
On *Capsicum* sp.
CUNDINAMARCA: *Mayor.*

*297. PUCCINIA GOUANIAE Holw. Myc. **3**: 21. 1905.
On *Gouania* sp.
ANTIOQUIA: La Camelia, Angelopolis (R. A. Toro) No. *293*, Jan. 22, 1928.

298. PUCCINIA HETEROSPORA Berk & Curt., Berk. Jour. Linn. Soc. **10**: 356. 1869.
On *Abutilon umbellatum* (L.) Sweet.
TOLIMA: *Mayor.*
On *Anoda cristata* (L.) Schlecht.
ANTIOQUIA: *Mayor.*
On *Anoda hastata* Cav.
ANTIOQUIA: Medellín (R. A. Toro) No. *195*, April 4, 1927.
On *Bastardia viscosa* (L.) H. B. K.
TOLIMA: *Mayor.*
On *Malvastrum peruvianum* (L.) A. Gray.
BOYACÁ: Duitama (R. A. Toro) No. *409*, Feb. 20, 1929.
On *Sida rhombifolia* L.
CALDAS: Ravines near Armenia, No. *549*, June 19, 1929.
On *Sida spinosa* L.
EL VALLE: Finca Santa Bárbara, Palmira, No. *283*, May 15, 1929.
ANTIOQUIA: *Chardon.*
On *Wissadula periplocifolia* (L.) Presl.
TOLIMA: *Mayor.*
On Malvaceae.
EL VALLE: Near Rozo, northwest of Palmira, No. *325*, May 21, 1929.
ANTIOQUIA: *Mayor.*
A widespread rust in the tropical regions of both hemispheres.

299. PUCCINIA HUALLAGENSIS P. Henn. Hedwigia **43**: 158. 1904.
On *Solanum* aff. *myrianthum* Britt.
CUNDINAMARCA: Girardot, (R. A. Toro) No. *403*, Feb. 15, 1929.
On *Solanum torvum* Sw.
EL VALLE: Finca Las Cañas, South of Jamundi, No. *274*, May 15, 1929.

On *Solanum* aff. *torvum* Sw.
ANTIOQUIA: *Mayor.*

300. PUCCINIA HYDROCOTYLES (Link) Cooke, Grevillea **9**: 14. 1880.
On *Hydrocotyle leucocephala* Cham.
ANTIOQUIA: *Mayor.*
On *Hydrocotyle quinqueloba* Ruiz & Pav. var. *stella* (Pohl.) Urban.
ANTIOQUIA: *Mayor.*
On *Hydrocotyle umbellata* L.
ANTIOQUIA: Medellín, (R. A. Toro) No. *249*, Sept. 3, 1927.
CUNDINAMARCA: *Mayor.*
Known also in North America, the West Indies, Europe, and New Zealand.

PUCCINIA HYPTIDIS Tracy & Earle, Bull. Miss. Agr. Exp. Sta. **34**: 86. 1895.
On *Hyptis capitata* Jacq. var. *vulgaris* Briq.
ANTIOQUIA: *Mayor.*

PUCCINIA HYPTIDIS-MUTABILIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 496. 1913.
On *Hyptis mutabilis* (Rich.) Briq. var. *polystachya* H. B. K..
ANTIOQUIA: *Mayor.*
On *Hyptis mutabilis* (Rich.) Briq. var *spicata* (Poit) Briq.
ANTIOQUIA: *Mayor.*

*301. PUCCINIA IMPEDITA Mans & Holw; Arth. Mycologia **10**: 135. 1918.
On *Salvia petiolaris* H. B. K.
ANTIOQUIA: Boquerón, (R. A. Toro) No. *295*, Jan. 5, 1928.
Known also from Mexico, Central America, and the West Indies.

302. PUCCINIA LANTANAE Farl. Proc. Am. Acad. **18**: 83. 1883.
On *Lantana camara* L.
ANTIOQUIA: Medellín (R. A. Toro) No. *180*, March 19, 1927.
On *Lantana hispida* H. B. K.
ANTIOQUIA: *Mayor.*
On *Lantana tiliifolia* Cham.
TOLIMA: *Mayor.*
On *Lantana trifolia* L.
ANTIOQUIA: *Mayor.*
TOLIMA: *Mayor.*

303. Puccinia lateritia Berk & Curt. Jour. Phila. Acad. Sci. **2**: 281. 1853.

On *Borreria laevis* (Lam.) Griseb.

Antioquia: Medellín (R. A. Toro) No. *194*, April 4, 1927; Salgar (R. A. Toro) No. *376*, July 20, 1928.

El Valle: Candelaria No. *327*, May 21, 1929.

Antioquia: *Mayor.*

El Valle: *Mayor.*

On *Borreria latifolia* (Aubl.) Schum.

Caldas: Ravine near Armenia, No. *548*, June 19, 1929.

Cundinamarca: Granja La Esperanza, No *587*, June 23, 1929.

Caldas: Along Quindio River, No. *721*, July 14, 1929.

Tolima: Along Combeima River near Ibagué, No. 667, June 20, 1929.

Recorded also from the United States, Mexico, Central America, and the West Indies.

*304. Puccinia Leonotidis (P. Henn.) Arth. Mycologia **7**: 245. 1915.

Puccinia Leonotidicola P. Henn. in H. Baum. Kun. Samb. Exp. **2**: 1903.

On *Leonotis nepetaefolia* (L.) R. Br.

Nariño: Tumaco (R. A. Toro) No. *558*. Oct. 5, 1929.

El Valle: Exp. Station Grounds, Palmira, No. *263*, May 15, 1929; Hacienda El Hatico, between Cerrito and Palmira, No. *359*, May 23, 1929.

Tolima: Outskirts of Ibagué No. *554*, June 20, 1929.

Cundinamarca: Granja La Esperanza, No. *592*, June 23, 1929.

Puccinia levis (Sacc. & Bizz.) Magn. Ber. Deuts. Bot. Ges. **9**: 190. 1891.

Puccinia Paspali Tracy & Earle, Bull. Torrey Club **22**: 174. 1895

On *Axonopus scoparius* (Fl.) Hitch.

Antioquia: *Chardon.*

On *Manisuris granularis* Sw. (Sydow Monog. Ured. **1**: 759. 1903.)

On *Paspalum Fournierianum* Ricker var. *maximum* Thellung.

Antioquia: *Mayor.*

On *Paspalum pilosum* Lam.

Antioquia: *Chardon.*

Known also in Bolivia, Ecuador, Paraguay, Venezuela, Argentina, southern United States, Central America, and the West Indies.

PUCCINIA LIABI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 539. 1913.

On *Liabum hastatum* (Wedd.) Britton.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

PUCCINIA MACROPODA Speg. Fungi Arg. Puig. II, No. 34: 1887.

On *Iresine* sp.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

305. PUCCINIA MALVACEARUM Bertero; Mont. in C. Gay. Fl. Chile **8**: 43. 1852.

Puccinia Sidae-rhombifoliae Mayor, Mem. Soc. Neuth. Sci. Nat. 484. 1913.

On *Malvastrum corchorifolium* (Dest.) Britton.

CUNDINAMARCA: Granja La Esperanza, No. *589*, June 23, 1929.

On *Malvastrum coromandelianum* (L.) Garcke.

ANTIOQUIA: Medellín, (R. A. Toro) No. *177*, March 10, 1927; (R. A. Toro) No. *186*, March 5, 1927.

EL VALLE: Finca Rincón, along Pance River, No. *251*, May 14, 1929; Candelaria, No. *329*, May 21, 1929.

CUNDINAMARCA: Granja La Esperanza, No. *583*, June 23, 1929.

ANTIOQUIA: *Mayor.*

On *Malvastrum tricuspidatum* A. Gray (*M. americanum* Torr.)

EL VALLE: Exp. Station Grounds, Palmira, No. *289*, May 16, 1929.

On *Malvastrum* sp.

EL VALLE: Hacienda La Foresta, Pradera, No. *335*, May 21, 1929.

On *Sida rhombifolia* L.

ANTIOQUIA: *Mayor.*

EL VALLE: *Mayor.*

Known also in North America, the West Indies and nearly throughout the world where hollyhocks are grown.

PUCCINIA MARISCI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 474. 1913.

On *Mariscus flavus* Vahl.

ANTIOQUIA: *Mayor.*

On *Mariscus hermaphroditus* (Jacq.) Urban.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

306. PUCCINIA MAYERIIANSI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 521. 1913.

On *Baccharis oronocensis* DC.

ANTIOQUIA: Granizales, (R. A. Toro) No. *291*, Sept. 11, 1927.

ANTIOQUIA: *Mayor.*

307. PUCCINIA MEDELLINENSIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 497. 1913.

On *Hyptis pectinata* (L.) Poit.

ANTIOQUIA: Medellín, (R. A. Toro) No. *271*, Dec. 29, 1929; *Mayor.*

Known also in Central America and the West Indies.

308. PUCCINIA MELAMPODII Diet. & Holw. Bot. Gaz. **24**: 43. 1897.

Puccinia Synedrellae P. Henn. Hedw. **37**: 277. 1898.

Puccinia Eleutherantherae Diet. Ann. Myc. **7**: 354. 1909.

Puccinia Wedeliae Mayor Mem. Soc. Neuch. Sci. Nat. **5**: 528. 1913.

Micropuccinia Melampodii Arth. & Jackson, N. Am. Fl. **7**: 581. 1922.

On *Eleutheranthera ruderalis* (Sw.) Sch.–Bip.

ANTIOQUIA: Fredonia, (R. A. Toro) No. *239*, July 31, 1927.

EL VALLE: Near Palmira, No. *292*, May 16, 1929: *Candelaria*, No *332*, May 21, 1929.

MAGDALENA: *Mayor.*

On *Eupatorium turbacense ovalifolium* Hieron.

ANTIOQUIA: La Camelia, Angelopolis (R. A. Toro) No. *292*.

CUNDINAMARCA: Granja La Esperanza, No. *588*, June 23, 1929.

On *Spilanthes ciliata* H. B. K.

EL VALLE: La Paz, Andalucia, No. *528*, June 7, 1929.

On *Synedrella nodiflora* (L.) Gaertn.

EL VALLE: Along Cauca River near Cali, No. *323*, May 21, 1929; Hacienda Bitaco, Cordillera Occidental, No. *492*, June 11, 1929.

ANTIOQUIA: *Chardon.*

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

TOLIMA: *Mayor.*

On *Wedelia caracassana* DC.

ANTIOQUIA: *Chardon.*

On *Wedelia trichostephia* DC.

ANTIOQUIA: *Mayor.*

Known also through Central America and in the West Indies.

A common rust in the American tropics on various composite hosts. This is the first report of a species on *Eupatorium*.

*309. Puccinia Menthae Pers. Syn. Fung. 227. 1801.

On *Hyptis mutabilis spicata* (Poit.) Epl.

Cundinamarca: Slopes of Salto de Tequendama, Nos. *643*, *643 b*, July 6, 1929.

Known also in North America, Europe, Asia, Africa, and Australia.

Apparently this is the first report from South America and also the first report on a species of *Hyptis*. Although known on a large number of genera and species of mints, the genus *Hyptis* does not appear to have been recorded. Aecia, uredinia, and telia are present and all agree very well.

Puccinia Montoyae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 523. 1913.

On *Baccharis floribunda* H. B. K.

Cundinamarca: *Mayor.*

Puccinia Montserrates Mayor, Mem. Soc. Neuch. Sci. Nat **5**: 520. 1913.

On *Baccharis bogotensis* H. B. K.

Cundinamarca: *Mayor.*

*310. **Puccinia Nariñensis** Kern and Whetzel sp. nov.

Telia hypophyllous, gregarious, in groups 0.5–2 mm. or more across, punctiform, 0.1–0.2 mm. across, compact, pulvinate, blackish brown; teliospores variable in shape, sometimes ellipsoid, obovoid, often flattened on one side, frequently with the pedicel obliquely attached, 18–23 x 26–35 u, apex rounded or truncate, base narrowed or oblique, slightly or not constricted at the septum, the wall chestnut brown, about 1.5 u, darker and usually thicker above, smooth, the pedicel fragile, about half length of spore.

On *Eupatorium* sp.

Nariño: Tumaco (R. A. Toro) No. *557*, Oct. 5, 1929. (type).

A microcyclic species differing in spore characters from *P. eupatoriicola* and *P. tolimensis*. The new species has spores that are broader, much shorter, and considerably darker in color. It does not agree with any described short-cycle species on *Eupatorium* or closely related host.

Puccinia Ortizi Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 503. 1913.

On *Brachistus* aff. *hebephyllus* Miers.

Cundinamarca: *Mayor.*

311. Puccinia Oxalidis (Lev.) Diet. & Ellis; Dietel, Hedwigia **34**: 291. 1895.

Uredo Oxalidis Lev. Ann. Sci. Nat. **11**: 16. 1841.

Trichobasis Oxalidis Lev. Ann. Sci. Nat. IV. **20**: 299. 1863.

On *Oxalis pubescens* H. B. K.

Antioquia: Medellín No. *192* (R. A. Toro), April 4, 1927.

Cundinamarca: (reported by Leveille.)

On *Oxalis* sp.

El Valle: Above Cali, No. *442*, June 4, 1929.

Known also in North America and the West Indies.

This appears to be the first rust reported from Colombia.

It is listed by Leveille in the Prodromus Florae Novo. Granatensis Cryptogamie (Triana, J. and Planchon, J. E.) which was published in 1863.

Puccinia Oyedaeae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 535. 1913.

On *Oycdaea* aff. *buphthalmoides* DC.

Antioquia: *Mayor.*

312. Puccinia pallescens Arth. Bull. Torrey Club **46**: 111. 1919.

On *Zea Mays* L.

El Valle: Hacienda La Foresta Pradera, No. *337*, May 21, 1929; plantations above Pavas, Cordillera Occidental, No. *509*, June 12, 1929.

Antioquia: *Chardon.*

Known also from Trinidad, Mexico, Central America, and the West Indies.

Puccinia pallidissima Speg. Anal. Soc. Ci. Arg. **12**: 69. 1881.

Puccinia albida Diet. & Neg. Bot. Jahrb. **24**: 160. 1897.

On *Stachys Mayorii* Briq.

Antioquia: *Mayor.*

Puccinia paramensis Mayor. Mem. Soc. Neuch. Sci. Nat. **5**: 493. 1913.

On *Salvia cernua* H. B. K.

Antioquia: *Mayor.*

313. Puccinia Pittieriana P. Henn. Hedwigia **42**: 147. 1904.

On *Solanum tuberosum* L.

Tolima: Briceño, V. Sacco No. *537* (com. R. A. Toro), Feb. 5, 1930.

Known also from Ecuador, Paraguay, and Costa Rica.

314. PUCCINIA POCULIFORMIS (Jacq.) Wettst. Verh. Zool.—Bot. Ges. Wien. **35**: 544. 1886.

Puccinia graminis Pers. Neues Mag. Bot. **1**: 119. 1794.

On *Agrostis perennans* (Walt.) Tuckerm.

ANTIOQUIA: *Chardon.*

On *Anthoxanthum odoratum* L.

CUNDINAMARCA: Wet meadows above Salto de Tequendama, Nos. *660*, *664*, July 6, 1929.

On *Avena sativa* L.

CUNDINAMARCA: La Picota Exp. Farm, south of Bogotá, No. *632*, June 30, 1929.

On *Phleum pratense* L.

CUNDINAMARCA: La Picota Exp. Farm, south of Bogotá, No. *634*, June 30, 1929.

On *Stipa neesiana* Trin. & Rupr.

CUNDINAMARCA: La Picota Exp. Farm, south of Bogotá, No. *619*, June 30, 1929.

On *Triticum aestivum* L.

CUNDINAMARCA: La Picota Exp. Farm, south of Bogotá, No. *622*, June 30, 1929; Sibate, J. Díaz, No. *400*, Sept. 2, 1929.

Known in Perú, Chile, Bolivia, and in all parts of the world where cereal grains are cultivated; apparently less prevalent in South America and Europe.

315. PUCCINIA POLYGONI-AMPHIBII Pers. Syn. Fung. 227. 1801.

On *Persicaria hydropiperoides* (Michx.) Small.

CUNDINAMARCA: Meadows above Salto de Tequendama, No. *662*, July 6, 1929.

On *Persicaria persicarioides* (H. B. K.) Small.

CUNDINAMARCA: Ravine between Cerro Monserrate and Guadalupe, above Bogotá, No. *595*, June 23, 1929.

On *Persicaria punctata* (Ell.) Small (*Polygonum* acre H. B. K.)

CUNDINAMARCA: Ravine Cerro Monserrate and Guadalupe, above Bogotá, No. *608*, June 25, 1929.

ANTIOQUIA: Envigado (R. A. Toro) No. *243*, Aug. 5, 1927.

ANTIOQUIA: *Chardon; Mayor.*

Known also throughout North America, Europe, Africa, India, China, and Japan.

316. Puccinia Psidii Wint. Hedwigia **23**: 171. 1884.

Uredo Myrciae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 590. 1913.

On *Jambos Jambos* (L.) Millsp.

Antioquia: Medellín (R. A. Toro) No. *300*, Jan. 20, 1928; *Chardon*

On *Myrcia* cf. *acuminata* (H. B. K.) DC.

Antioquia: *Mayor.*

On *Myrcia* sp.

Antioquia: Medellín (R. A. Toro) No. *306*, Jan. 20, 1928.

On *Psidium.* sp.

Antioquia: Medellín (R. A. Toro) No. *308*, Jan. 20, 1928.

On Myrtaceae sp.

Antioquia: Fredonia (R. A. Toro) No. *196*, April 10, 1927; La Camelia, Angelopolis, (R. A. Toro) No. *290*, Jan. 22, 1928; Medellín (R. A. Toro) No. *215*, Aug. 2, 1927; Salgar (R. A. Toro) No *374*, July 20, 1928.

Known also from Brazil and the West Indies.

Puccinia punctata Link, Ges. Nat. Freunde Berlin Mag. **7**: 30. 1815.

On *Relbunium hypocarpium* (L.) Hemsley.

Antioquia: *Mayor.*

The North American hosts are all species of *Galium.*

*317. Puccinia purpurea Cooke, Grevillea **5**: 15. 1876.

On *Holcus Sorghum* L.

El Valle: Hacienda La Foresta, Pradera, No. *338*, May 21, 1929.

Known also from Perú, Brazil, North America, the West Indies, Europe, Asia, Africa, and Hawaii.

*318. Puccinia Rhamni (Pers.) Wettst. Verh. Zool.—Bot. Ges. Wien. **35**: 545. 1886.

On *Agrostis perenans* (Walt.) Tuckerm.

Cundinamarca: Wet meadows above Salto de Tequendama, No. *661*, July 6, 1929.

Caldas: Ravines near Calarca, along Armenia–Ibagué road, No. *708*, July 6, 1929.

On *Avena sativa* L.

Boyacá: Duitama (R. A. Toro) No. *408*, Feb. 20, 1929.

Known also from Chile, Bolivia, Brazil, Ecuador, and on all continents.

Apparently the first report from Colombia. Not reported by Arthur from South America on the genus *Agrostis.*

319. PUCCINIA ROTUNDATA Diet. Hedwigia **36**: 32. 1897.

Puccinia rugosa Speg. Ann. Soc. Cien Arg. **17**: 92. 1884. Not. *P. rugosa* Billings, 1871.

On *Vernonia brasiliana* (L.) Druce.

EL VALLE: Near Santa Ana between Cartago and Cauca River, No. *372*, May 20, 1929; Hacienda El Hatico between Cerrito and Palmira, No. *358*, May 23, 1929.

On *Vernonia patens* H. B. K.

ANTIOQUIA: Medellín (R. A. Toro) No. *182*, March 19, 1927; Nos. *301*, *302*, Jan. 20, 1928.

On *Vernonia scabra* Pers.

TOLIMA: *Mayor.*

MAGDALENA: Santa Marta, H. H. Smith phan. spec. *613*, date?

Known also from Brazil and Central America.

PUCCINIA RUELLIAE (Berk. & Br.) Lagerh. Tromsö Mus. Aarch. **17**: 71. 1895.

Uredo balaensis Syd. Ann. Mycol. **1**: 21. 1903.

On *Blechum Brownei* Juss.

ANTIOQUIA: *Mayor.*

A common rust in the tropical regions of both hemispheres.

PUCCINIA RUIZENSIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 486. 1913.

On *Oreomyrrhris andicola* (H. B. K.) Endlicher.

ANTIOQUIA: *Mayor.*

PUCCINIA SALVIICOLA Diet. & Holw. Bot. Gaz. **24**: 33. 1897.

Uredo Salviarium Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 592. 1913.

On *Salvia cataractarum* Briq.

CUNDINAMARCA: *Mayor.*

On *Salvia Mayorii* Briq.

CUNDINAMARCA: *Mayor.*

On *Salvia petiolaris* H. B. K.

ANTIOQUIA: *Mayor.*

Known also in southern United States and Mexico.

PUCCINIA SAMPERII Mayor, Mem. Soc. Neuch, Sci. Nat. **5**: 499. 1913.

On *Chaenocephalus arboreus* (H. B. K.) O. Hoffm.

CUNDINAMARCA: *Mayor.*

PUCCINIA SARACHAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 499. 1913.

On *Saracha edulis* (Schlecht.) Thellung.

ANTIOQUIA: *Mayor.*

CUNDINAMARCA: *Mayor.*

On *Saracha* aff. *edulis* (Schlecht.) Thellung.

ANTIOQUIA: *Mayor.*

Known also in Central America and the West Indies.

*320. PUCCINIA SCHISTOCARPHAE Jacks. & Holw., Am. Jour. Bot. **5**: 334. 1918.

On *Schistocarpha* sp.

ANTIOQUIA: Medellín (R. A. Toro) No. *255*, Sept. 3, 1927.

Heretofore known only from Guatemala.

321. PUCCINIA SCLERIICOLA Arth. Mycologia **7**: 232. 1915.

On *Scleria melaleuca* Cham. & Schlecht.

ANTIOQUIA: *Mayor.*

On *Scleria* sp.

ANTIOQUIA: Fredonia (R. A. Toro) No. *233*, July 31, 1927.

Known also from Florida and the West Indies.

Apparently the first report from South America. Mayor reports the foregoing specimen on *Scleria melaleuca* as *Uromyces Scleriae* P. Henn. but that species has the urediniospore-wall 3–9 u thick above whereas Mayor says his spores have a uniform wall 2 u thick. Both his specimen and that of Toro seem best referred to *Puccinia scleriicola.*

*322. PUCCINIA SMILACIS Schw. Schr. Nat. Ges. Leipzig **1**: 72. 1822.

On *Smilax cumanensis* Willd.

TOLIMA: Along Combeima River, near Ibagué, No. *568*, June 20, 1929.

Known also from the United States, Mexico, and the West Indies. This is the first report from South America.

323. PUCCINIA SOLANITA (Schw.) Arth. Mycologia **14**: 19. 1922.

Puccinia claviformis Lagerh. Tromsö Mus. Aarch. **17**: 53. 1895.

Puccinia solanicola Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 505. 1913.

On *Solanum hirtum* Vahl.

TOLIMA: *Mayor.*

On *Solanum* aff. *ovalifolium* H. & B.

CUNDINAMARCA: *Mayor.*

On *Solanum stramonifolium* Jacq.

ANTIOQUIA: Medellín (R. A. Toro) No. *183*, March 19, 1927.

On *Solanum torvum* Sw.

ANTIOQUIA: Medellín (R. A. Toro) No. *187*, March 5, 1927.

TOLIMA: Along Combeima River, near Ibagué, No. *750*, June

TOLIMA: Along Combeima River, near Ibagué, No. *570*, June 20, 1929.

On *Solanum* sp.

ANTIOQUIA: *Chardon.*

TOLIMA: *Mayor.*

CUNDINAMARCA: *Mayor.*

MAGDALENA: C. F. Barker No. *76*. (reported by Earle, Bull. Torrey Club **26**: 632).

EL VALLE: Along road near Pradera, No. *339*, May 23, 1929.; Hacienda El Hitaco between Cerrito and Palmira, No. *357*, May 23, 1929.

Known also in Central America.

PUCCINIA SOLEDADENSIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 494. 1913.

On *Salvia ? panciserrata* Benth.

TOLIMA: *Mayor.*

324. PUCCINIA SORGHI Schw. Trans. Am. Phil. Soc. II. **4**: 295. 1852.

Puccinia Maydis Berebg. Atti. Sci. Ital. **6**: 475. 1845 (hyponym.)

On *Zea Mays* L.

EL VALLE: Near Rozo, northwest of Palmira, No. *399*, May 31, 1929.

ANTIOQUIA: *Mayor.*

325. PUCCINIA SPEGAZZINII De-Toni, in Sacc. Syll. Fung. **7**: 704. 1888.

On *Mikania cordifolia* (L.) Willd.

EL VALLE: Finca Las Cañas, south of Jamundi, No. *277*, May 15, 1929.

CUNDINAMARCA: Granja La Esperanza, No. *582*, June 23, 1929.

TOLIMA: El Boquerón, west of Ibagué along Armenia road, No. *698*, July 13, 1929.

On *Mikania scandens* (L.) Willd.

ANTIOQUIA: *Mayor.*

On *Mikania* sp.

ANTIOQUIA: Medellín (R. A. Toro) No. *250*, Sept. 3, 1927; Salgar, (R. A. Toro) No. *360*, July 20, 1928.

Known also in Argentina, North America, the West Indies, Martinique, and Trinidad.

326. PUCCINIA SPILANTHICOLA Mayor, Mem. Soc. Neuch. Sci. Nat. **5**:531. 1913.

On *Spilanthes americana* (Mutis) Hieron.

ANTIOQUIA: *Mayor.*

On *Spilanthes ciliata* H. B. K.

EL VALLE: Candelaria, No. *326*, May 21, 1929.

TOLIMA: Along Combeima River near Ibagué, No. *571*, June 20, 1929; El Boquerón, west of Ibagué along Armenia road, No. *695*, June 13, 1929.

ANTIOQUIA: *Mayor.*

Except for the mesospores, which are numerous in this species, it is very like *Puccinia Melampodii.*

PUCCINIA SUBCORONATA P. Henn. Hedwigia **34**:94. 1895.

Puccinia antioquiensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**:473. 1913.

On *Cyperus diffusus* Vahl.

ANTIOQUIA: *Mayor.*

Known also in Bolivia, Brazil, British Guiana, Trinidad, and Central America.

According to Jackson the differences on which Mayor separated *P. antioquiensis* from *P. subcoronata* do not hold when more ample material is taken into account and he has united the two.

327. PUCCINIA SUBDIGITATA Arth. & Howl.; Arth Am. Jour. Bot. **5**:468. 1918.

On *Brachypodium mexicanum* Link.

CUNDINAMARCA: Ravines between Cerro Monserrate and Guadalupe, above Bogotá, No. *611*, June 25, 1929.

Known also in Bolivia and the type locality in Guatemala.

328. PUCCINIA SUBSTRIATA Ellis & Bart. Erythea **5**:47. 1897.

Uredo Henningsii Sacc. Syll. Fung. **17**:456. 1905.

An explanation must be made regarding the use of this name in connection with Colombian rusts. The name appears in Mayor's work but the specimen cited is from Jamaica and not Colombia. The name *Uredo Henningsii* listed by Mayor is a synonym of *Puccinia substriata* but the specimen on *Panicum lanatum* which he refers to that species seems without doubt to be *Uromyces leptodermus.*

On *Chaetochloa geniculata* (Lam.) Millsp.

El Valle: Banks of Cauca River near Cali, No. *324*, May 21, 1929.

On *Paspalum paniculatum* L.

El Valle: Hacienda Bitaco, Cordillera Occidental, No. *478*, June 10, 1929.

Known also from Brazil, Perú, Bolivia, North America, and the West Indies.

329. Puccinia tageticola Diet. & Howl.; Holway, Bot. Gaz. **24**: 26. 1897.

On *Tagetes microglossa* Benth.

Antioquia: *Mayor.*

On *Tagetes patula* L.

Antioquia: Fredonia, (R. A. Toro) No. *244*, Aug. 14, 1927.

Known also in Mexico, Central America, and the West Indies.

330. Puccinia tolimensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 516. 1913.

On *Eupatorium turbacense* Hieron.

Antioquia: Angelopolis, (R. A. Toro) No. *343*, Jan. 22, 1928.

On *Eupatorium* sp.

Tolima: *Mayor.*

Known also in Guatemala and one locality in New York.

331. Puccinia tubulosa (Pat. & Gaill.) Arth. Am. Jour. Bot. **5**: 464. 1918.

Uredo paspalicola P. Henn. Hedwigia **44**: 57. 1905.

On *Paspalum conjugatum* Berg.

Antioquia: Parque Independencia, Medellín (R. A. Toro) No. *253*, Sept. 3, 1927.

El Valle: Banks of Cauca River near Cali, No. *321*, May 21, 1929.

Antioquia: *Mayor.*

On *Paspalum Humboldtianum* Flugge.

Tolima: El Boquerón, west of Ibagué along Armenia road, No. *697*, July 13, 1929.

On *Paspalum paniculatum* L.

El Valle: Finca Las Cañas, south of Jamundi, No. *271*, May 15, 1929; along Cauca River near Cali, No. *434*, June 8, 1929.

Caldas: Ortegadiaz R. R. Station, route from Zarzal to Armenia, No. *540*, June 19, 1929.

Known also in Brazil, Bolivia, Central America, the West Indies, and Asia.

PUCCINIA VERNONIAE-MOLLIS Mayor, Mem. Soc. Neutch. Sci. Nat. **5**: 510. 1913.

Aecidium Vernoniae-mollis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 570. 1913.

The aecia described by Mayor as *Aecidium Vernoniae-mollis* are from the same locality as two of the collections of *Puccinia*. Jackson (Bot. Gaz. **65**: 296. 1918) believes that these aecia belong in the life history of this species. The identity of *Uredo Vernoniae* Mayor remains in doubt.

On *Vernonia* cf. *mollis* H. B. K.

ANTIOQUIA: *Mayor.*

On *Vernonia* sp.

CUNDINAMARCA: Granja La Esperanza, No. *591*, June 23, 1929.

ENDOPHYLLUM Lev. Mem. Soc. Linn. Paris **4**: 208. 1825.

332. ENDOPHYLLUM CIRCUMSCRIPTUM (Schw.) Whet. & Olive, Am. Jour. Bot **4**: 49. 1917.

Aecidium circumscriptum Schw.; Berk. & Curt. Jour. Phila. Acad. Sci. II. **2**: 283. 1853.

Aecidium Cissi Wint. Hedwigia **23**: 168. 1884.

On *Cissus sicyoides* L. (*Vitis sicyoides* (L.) Baker).

ANTIOQUIA: Fredonia (R. A. Toro) No. *206*, July 30, 1927.; Titiribi (R. A. Toro) No. *268*, Aug. 8, 1927.

EL VALLE: Finca Las Cañas, south of Jamundi, No. *275*, May 15. 1929.

ANTIOQUIA: *Mayor.*

On *Cissus* sp. (*Vitis* sp.)

CUNDINAMARCA: *Mayor.*

Known also from Surinam, Central America, the West Indies, and Trinidad.

333. ENDOPHYLLUM DECOLORATUM (Schw.) Whet. & Olive, Am. Jour. Bot. **4**: 49. 1917.

Aecidium Wedeliae Earle, Muhlenbergia **1**: 16. 1901.

Aecidium Clibadii Sydow, Ann. Myc. **1**: 333. 1903.

On *Clibadium surinamense* L.

ANTIOQUIA: Fredonia; (R. A. Toro) No. *200*, July 31, 1927.: (R. A. Toro) No. *241*, Aug. 1, 1927.

El Valle: La Paz, Andalucia, No. *532*, June 7, 1929.
Tolima: El Boquerón, west of Ibagué, No. *701*, July 13, 1929.
On *Clibadium surinamense asperum* (Aublet) Baker.
Antioquia: *Mayor.*
Known also from Surinam, Mexico, Central America, the West Indies, and Trinidad.

334. Endophyllum Stachytarphetae (P. Henn.) Whet. & Olive, Am. Jour. Bot. **4**: 50. 1917.
Aecidium Stachytarphetae P. Henn. Hedwigia Beibl. **38**: 71. 1899.
On *Valerianodes cayennense* (L. C. Rich.) Kuntze, (*Stachytarpheta cayennensis* (Rich.) Vahl.)
Antioquia: Angelopolis, (R. A. Toro) No. *228*, July 27, 1927.
Tolima: Ravines along road near Ibagué, No. *560*, June 20, 1929.
Nariño: Tumaco, (R. A. Toro) No. *554*, Oct. 5, 1929.
Antioquia: *Mayor.*
Known also in Brazil, the West Indies, and Panamá.

Endophylloides Whet. & Olive, Am. Jour. Bot. **4**: 50. 1917.

*335. Endophylloides portoricensis Whet. & Olive, Am. Jour. Bot. **4**: 50. 1917.
On *Mikania Guaco* H. & B.
Tolima: Along Combeima River near Ibagué, No. *575*, June 20, 1929.
Known also from Panamá, Guatemala, Salvador, and Trinidad.
This is the first report of this species from Colombia.

Alveolaria Lagerh. Ber. Deuts. Bot. Ges. **9**: 346. 1891.

336. Alveolaria Cordiae Lagerh. Ber. Deuts. Bot. Ges. **9**: 346. 1891.
On *Cordia ferruginea* (Lam.) R. & S.
Tolima: Ravines along road near Ibagué, No. *562*, June 20, 1929.
On *Cordia laxiflora* H. B. K.
Antioquia: *Mayor.*
Known also in Ecuador and Jamaica.

Pucciniosira Lagerh. Ber. Deutsh. Bot. Ges. **9**: 344. 1891.

337. Pucciniosira pallidula Speg.) P. Henn. Tromsö Mus. Aarsb.
On *Pavonia paniculata* Cav.
On Malvaceae sp.

ANTIOQUIA: *Mayor* (a doubtful reference).

Pavonia paniculata Cav.

ANTIOQUIA: *Mayor.*

On *Triumfetta semitriloba* Jacq.

ANTIOQUIA: Titiribi, (R. A. Toro) No. *267*, Aug. 8, 1927.

On *Triumfetta* sp.

EL VALLE: Finca Rincón, south of Cali, No. *257*, May 14, 1929; Santa Ana, No. *342*, May 23, 1929; thickets near San Pedro, north of Buga, No. *422*, June 11, 1929; Hacienda Bitaco, Cordillera Occidental, No. *491*, June 11, 1929.

Known also in Paraguay, Mexico, the West Indies, and Trinidad.

AECIDIUM (Form Genus)

338. AECIDIUM ADENARIAE Mayor, Mem. Soc. Neuch. Nat. Sci. **5**: 556. 1913.

On *Adenaria floribunda* H. B. K.

ANTIOQUIA: Medellín, (R. A. Toro) No. *305*, Jan. 20, 1928.

On *Adenaria floribunda purpurata* (H. B. K.) Kiehne.

ANTIOQUIA: *Mayor.*

AECIDIUM BOGOTENSE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 563. 1913.

On *Geranium multiceps* Turez.

CUNDINAMARCA: *Mayor.*

AECIDIUM BOMAREAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**:559. 1913.

On *Bomarea* cf. *Caldasii* (H. B. K.) Willd.

CUNDINAMARCA: *Mayor.*

On *Bomarea potacocensis* Herb.

CUNDINAMARCA: *Mayor.*

AECIDUM BORRERIAE Pat. Mem. Soc. Neuch. Sci. Nat. **5**: 569. 1913.

On *Hemidiodia ocimifolia* (Willd.) K. Schum.

ANTIOQUIA: *Mayor.*

*339. **Aecidium Capsici** Kern and Whetzel sp. nov.

Aecia chiefly hypophyllous, caulicolous, or petiolicolous, gregarious, capitulate, 0.2–0.3 mm. in diameter; peridium whitish, fragile, the margin erect, the peridial cells hexagonal-oval in face view, the inner wall rugose-verrucose, 19–29 u long; aecia-spores angularly oval, 13–18 x 16–24 u, the wall colorless, 1.5–2.5 u thick, finely verrucose.

We have found no rust of this sort on *Capsicum* or related hosts.

No pycnia were found by careful sectioning. It is entirely possible that these spores may germinate with promycelia but it is not possible to tell by examining these specimens.

On *Capsicum baccatum* L.

ANTIOQUIA: Fredonia, (R. A. Toro) No. *197*, April 10, 1927. (type).
EL VALLE: Coffee plantation above Pavas, Cordillera Occidental, No. *510*, June 12, 1929.

*340. **Aecidium Erigerontis** Kern and Whetzel sp. nov.

Pycnia amphigenous, few, chiefly hypophyllous in the center of circinating aecial groups, subepidermal flattened globoid, 95–115 u broad by 60–80 u high, ostiolar filaments up to 60 u long.

Aecia hypophyllous, gregarious, in groups 0.2–0.4 mm. across, minute cupulate about 0.1 mm. in diameter; peridium whitish, the margin erect or recurved, lacerate; peridial cells angularly oval, 26–39 u long, the inner wall closely rugose-verrucose; aeciospores obovoid or ellipsoid, often angular and narrowed above, 15–21 x 21–31 u, the wall colorless 1.5–2 u, much thicker above, 4–7 u, finely verrucose.

The noteworthy feature of this species is the thickening of the upper part of the aeciospore-wall.

On *Erigeron bonariensis* L.

EL VALLE: Dry tickets near San Pedro, north of Buga, No. *424*, June 4, 1929. (type).

AECIDIUM GYMNOLOMIAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 574. 1913.

On *Gymnolomia quitensis* (Benth.) Benth. & Hook.

CUNDINAMARCA: *Mayor.*

341. AECIDIUM HELIOPSIDIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 573. 1913.

On *Heliopsis buphthalmoides* (Jacq.) Dunal.

ANTIOQUIA: La Camelia, Angelopolis (R. A. Toro) No. *320*, Jan. 22, 1928.
ANTIOQUIA: *Mayor.*
CUNDINAMARCA: *Mayor.*

AECIDIUM LANTANAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 567. 1913.

On *Lantana hispida* H. B. K.

ANTIOQUIA: *Mayor.*

AECIDIUM LIABI Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 576. 1913.

On *Liabum igniarum* (Humb. & Bompl.) Less.

ANTIOQUIA: *Mayor.*

*342. **Aecidium Manettiae** Kern and Whetzel sp. nov.

Pycnia amphigenous or caulicolous, intermingled with the aecia, becoming blackish, flattened globoid, deep-seated, 160–190 u broad by 130–160 u high; ostiolar filaments not projecting to any extent.

Aecia amphigenous, caulicolous, or petiolicolous, gregarious, sometimes extending along the stems for several cm., deep-seated, hemispheric with irregular rupture; peridium not much exserted; peridial cells oblong or somewhat rhomboidal, 55–65 long, the outer wall 1.5 u, the inner wall 5–6 u, the inner and side walls rugose; aeciospores broadly ellipsoid, 19–26 x 31–37 u, the wall colorless, about 1.5 u, thick, closely and coarsely verrucose.

There is a species of *Puccinia* and also of *Uromyces* on this host genus but both seem to be microcyclic judging from the description. We have found no aecial stage to which this collection could be referred.

On *Mannetia Toroi* Standley.

ANTIOQUIA: Salgar, (R. A. Toro) No. *331*, July 20, 1928. (type).

AECIDIUM PARAMENSE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 571. 1913.

On *Eupatorium obscurifolium* Hieron.

CUNDINAMARCA: *Mayor.*

AECIDIUM SPEGAZZINII DeToni, Sacc. Syll. Fung. **7**: 802. 1888.

On *Erigeron bonariensis* L.

There is a strong possibility that this may be the aecial stage of the Carex rust, *Puccinia Asterum* (Schw.) Kern.

CUNDINAMARCA: *Mayor.*

UREDO (Form Genus)

*343. UREDO ANTHURII (Hariot) Sacc. Syll. Fung. **11**: 229. 1895.

On *Anthurium* sp.

EL VALLE: Mountains above Cali, No. *458*, June 10, 1929.

Known also from the type locality, green-houses of the Jardin des Plantes in Paris, and a single collection from Porto Rico.

A rare species. This is the first collection from South America.

*344. UREDO ARTOCARPI Berk. & Br. Jour. Linn. Soc. **14**: 93. 1873.

On *Artocarpus communis* Forst.

EL VALLE: Finca Santa Bárbara, Palmira, No. *282*, May 16, 1929.

Known also from Cuba, Porto Rico, Santo Domingo, and India. This is the first report from South America.

Uredo Baccharidis-anomalae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 597. 1913.

On *Baccharis anomala* DC.

Cundinamarca: *Mayor.*

Uredo Caleae Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 598. 1913.

On *Calea glomerata* Klatt.

Antioquia: *Mayor.*

345. Uredo Cherimoliae Lagerh. Bull. Soc. Myc. Fr. **11**: 215. 1895.

On *Annona cherimolia* Mill.

El Valle: Finca Piedra Grande, south of Cali, No. *243*, May **14**, 1929.

Caldas: Along Quindio River near Armenia, No. *711*, July 14, 1930.

Antioquia: *Chardon.*

*346. **Uredo Cordiorum** Kern and Whetzel sp. nov.

Uredinia hypophyllous, scattered or somewhat gregarious, roundish, 0.5–0.8 mm. across, early naked, pulverulent; urediniospores broadly ellipsoid, globoid, or obovoid, 23–29 x 29–35 u, the wall cinnamon-brown, 3–3.5 u thick, not or only slightly thicker above, closely echinulate with coarse hyaline papillae, the pores 2, equatorial.

Although there are several species of rust on *Cordia* there is no uredinial stage which is at all similar to this. Both *Uromyces Cordiae* P. Henn. and *Uredo Cordiae* P. Henn. have the urediniospore-wall thickened above up to 10 u.

On *Cordia cylindrostachya* (R. & P.) Ros.

Cundinamarca: Slopes of Salto de Tequendama, No. *646*, July 6, 1929.

Uredo cundinamarcensis Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 591. 1913.

On *Apium ternatum* (Willd.) Thellung var. *ranunculifolium* (H. B. K.) Thelung.

Cundinamarca: *Mayor.*

347. Uredo Cupheae P. Henn. Hedwigia **34**: 99. 1895.

On *Parsonsia pinto* (Vand.) Hiller.

Caldas: Near Armenia No. *545*, June 19, 1929.

Antioquia: *Chardon.*

On *Parsonsia racemosa* (L. f.) Standley.

El Valle: Mountains above Cali, No. *452*, June 9, 1929.

On *Cuphea serphyllifolia* H. B. K.
ANTIOQUIA: *Mayor.*
On *Cuphea strigulosa* H. B. K.
TOLIMA: El Boquerón, along Armenia road, west of Ibagué, No. *702*, July 13, 1929.
On *Parsonsia* sp.
ANTIOQUIA: Medellín, (R. A. Toro) No. *176*, March 10, 1927; April 3, 1927.
Known also from the West Indies.

UREDO CYATHULAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 584. 1913.
On *Cyathula achyranthoides* (H. B. K.) Moq.
CUNDINAMARCA: *Mayor.*

UREDO GUACAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 583. 1913.
On *Epidendrum* sp.
ANTIOQUIA: *Mayor.*

UREDO HYMENAEAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 585. 1913.
On *Hymenaea* sp.
ANTIOQUIA: *Mayor.*

UREDO HYPTIDIS-ATRORUBENTIS Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 593. 1913.
On *Hyptis atrorubens* Poit.
ANTIOQUIA: *Mayor.*

*348. UREDO JATROPHICOLA Arth. Mycologia **7**: 331. 1915.
On *Jatropha gossypifolia* L.
EL VALLE: Near San Pedro, north of Buga, No. *427*, June 4, 1930.

349. UREDO KYLLINGAE P. Henn. Hedwigia **35**: 256. 1896.
On *Kyllingae brevifolia* Vahl.
ANTIOQUIA: *Mayor.*
On *Kyllinga odorata* Vahl.
ANTIOQUIA: *Mayor.*
On *Kyllinga* sp.
CUNDINAMARCA: Along road beyond Salto de Tequendama, No. *677*, July 7, 1929.

UREDO MANDEVILLIAE Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 591. 1913.
On *Mandevilla* cf. *mollisima* (H. B. K.) Schum.
ANTIOQUIA: *Mayor.*

Uredo Nephrolepidis Dietel; Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 576. 1913.

On *Nephrolepis pendula* Radii.

Antioquia: *Mayor.*

350. Uredo nociviola Jackson & Holway, Mycologia **13**: 144. 1926.

On *Cyperus ferax* L. C. Rich.

El Valle: Near Buenaventura, No. *212*, May 8, 1929.

*351. Uredo peperomiae P. Henn. Hedwigia **38**: 69. 1899.

The name *Uredo Peperomiae* is used here with some doubt. Some workers have combined *U. Piperis* and *U. Peperomiae*. The original descriptions would indicate that there are differences. In any event this specimen on *Piper antioquiense* is quite different from *U. Piperis* on *Piper Hartwigianum*. The sori of this specimen are punctiform and have paraphyses, are chiefly hypophyllous, and dirty brown, whereas those of *U. Piperis* are without paraphyses, epiphyllous, and yellowish brown.

On *Piper antioquiense* C. DC.

El Valle: Above Cali, No. *461*, June 10, 1929.

*352. Uredo piperis P. Henn. Hedwigia Beibl. **38**: 70. 1899.

This specimen has been compared with a specimen of *U. Piperis* from Brazil, (E. Ule, Mycotheca brasiliensis *26*) and with a specimen from Porto Rico determined by Arthur as *U. Piperis*. It agrees very well with these specimens. Thanks are due to Dr. Arthur for opportunity to examine these specimens.

On *Piper Hartwigianum* C. DC.

El Valle: Above Cali, No. *462*, June 10, 1929.

Uredo scabies Cooke, Grevillea **15**: 18. 1886.

On *Vanilla planifolia* Griseb.

Reported from Colombia by G. Lindau, Orchis **9**: 177. 1915.

Uredo Theresiae Neger, Beih. Bot. Centralb. B. **13**: 78. 1903.

On *Crotalaria anagyroides* H. B. K.

Tolima: Quindio Pass, Andes Centrales, Therese de Baviere.

Uredo Teramni Mayor, Mem. Soc. Neuch. Sci. Nat. **5**: 587. 1913.

In Porto Rico this host has on it *Phakopsora Vignae* (Bres.) Arth. but the characters given by Mayor for the collection referred to here do not agree with that species and it is here listed as valid.

On *Teramnus uncinatus* (L.) Sw.
ANTIOQUIA: *Mayor.*

*353. **Uredo tolimensis** Kern and Whetzel sp. nov.

Uredinia hypophyllous, gregarious, in groups 0.2–0.8 mm. across on discolored spots, roundish or oval, 0.3–0.8 mm. across, rather early naked, cinnamon-grown, pulverulent, ruptured epidermis conspicuous; urediniospores broadly ellipsoid, 23–32 x 32–39 u, the wall brownish yellow, 3–3.5 u thick often with a slight hyaline umbo at apex, prominently and obliquely striate, the pores 2–3 equatorial.

The notable feature of this species are the markings on the urediniospore walls. They are conspicuous, rather closely set ridges, running obliquely across the spore. Sometimes the ridges anastomose but always run for considerable distances without branching. Markings of this sort are rather unusual.

On *Solanum* sp.
TOLIMA: Along Combeima River, near Ibagué, No. *569*, June 20, 1922. (type).

UREDO TORULINI P. Henn. Hedwigia **44**: 57. 1905.
On *Torulinum ferax* (L. C. Rich) Urban.
ANTIOQUIA: *Mayor.*

*354. UREDO UNILATERALIS Arth. Bull. Torrey Club **45**: 155. 1918.

This uredo is a rather unusual one having spores that are reniform or concave on one side and only one pore which is on the concave side and usually subequatorial. Our specimen has on it pycnia and aecia which evidently by their association are a part of the life cycle of the species. The pycnia are subepidermal, globose or flattened globose, 64–80 x 80–105 u, with ostiolar filaments 26–42 u long. The aecia are scattered, yellowish, bullate, 0.5–1 mm. across, caeomoid, tardily naked, the aeciospores globoid or ellipsoid, 19–26 x 23–32 u, with wall thin, 1–1.5 u hyaline, finely verrucose. A careful search has revealed no evidence of the telial stage.

The host, *Geranium mexicanum* H. B. K., here listed is the one reported by Mayor, p. 463, and referred to *Uromyces Geranii* (DC.) Ott. & Wartm. The Mayor specimen was collected in the same locality as the one on *G. hirtum*. Mayor's description of the urediniospores makes it very certain that his collection should be referred here rather than to *Uromyces Geranii*.

On *Geranium mexicanum H. B. K.*

CUNDINAMARCA: Ravine between Cerro Monserrate and Guadalupe above Bogotá, No. *596*, June 25, 1929.

On *Geranium hirtum* Willd.

CUNDINAMARCA: *Mayor.*

Otherwise known only from the type locality, Amecameca, Mexico.

UREDO VERNONIAE Mayor, Mem. Soc. Neuch Sci. Nat. **5**: 594. 1913.

On *Vernonia* cf. *mollis* H. B. K.

ANTIOQUIA: *Mayor.*

UREDO ZEUGITIS Arth. & Holw.; Arth. Am. Jour. Bot. **5**: 538. 1918.

On *Zeugitis mexicana* (Kunth.) Trin.

ANTIOQUIA: *Chardon.*

Known also from the type locality in Guatemala.

EU-BASIDIOMYCETES

L. O. OVERHOLTS *

The first account that included species of the higher Basidiomycetes of Colombia seems to have been made by Hooker (in Kunth, C. S. Synopsis Plantarum quas in itinere ad plagam aequinoctialem Orbis Novi collegerunt Al. de Humboldt et Am. Bonpland, 7–13 (Fungi). Paris. 1822). This list enumerated ten species of the group that were reported to have been collected in what is now the Republic of Colombia. Since it is impossible to verify these determinations at present they are here listed separately, without further comment other than that in parenthesis following some of the names.

Agaricus umbilicatus Hook (Probably *Lentinus crinitus* (L.) Fries).

Daedalea laevis Hook.

Boletus reticulatus Hook. (*Hexagona reticulata* (Hook.) Glotzsch).

Boletus tenuis Hook. (*Favolus tenuis* (Hook.) Fries).

Boletus fibrosus Hook. (*Trametes hydnoidea* (Sw.) Fries).

Boletus pavonius Hook. (*Polyporus pavonius* (Hook.) Fries.)

Boletus purpurascens Hook. (Identity uncertain).

Hydnum palmatum Hook.

Thelephora badia Hook. (*Stereum cinereo-badium* Fries).

Peziza nigrescens Sw. (*Hirneola nigrescens* (Sw.) Fries).

In 1863 Leveille listed (in J. Triana and J. E. Planchon, Prodomus Forae Novo-Granatensis (Cryptogamie) 151–169. Paris. 1863–1867)

* Contribution from the Department of Botany, Pennsylvania State College.

seventeen species of higher Basidiomycetes from Colombia. The list is as follows:

Marasmius ramealis Bull.
Lenzites myriophylla Lev.
Polyporus Lindigii Lev.
Polyporus hymeninus Lev.
Polyporus chryseus Lev.
Polyporus versiporus Pers.
Polyporus tenax Lev.
Polystictus floridanus Berk.
Polystictus candidus Lev.
Favolus granulosus Lev.
Radulum trachyodon Lev.
Stereum villosum Lev.
Stereum Goudotianum Lev.
Stereum vitelinum Lev.
Corticium roseum Fries.
Lycoperdon pyriforme Pers.
Bovista fusca Lev.

No other extensive list of Colombia have been made, although an exhaustive search of the literature would probably show that a few additional species have been reported.

The collections turned over to me by Dr. Chardon yield twenty-nine rather positive identifications. A few collections were impossible to identify due to one cause or another, but mainly attributable to the very scanty descriptions extant. It is of interest to note that the list recorded by Leveille contains not a single duplication of the species listed by Hooker, and further that the list here presented duplicates, so far as can be learned at present, only three species listed by Hooker and not a single species listed by Leveille. A study of Leveille's specimens would probably show some duplications, however, since the larger number of those he described are either known only from the original collection or are not to be considered as well known species under the name he applied to them.

HYMENOMYCETES

Family 1. Auriculariaceae

355. Auricularia auricula-judae (Bull.) Schroet. Krypt. Fr. Schles. 3:38. 1889.

On fence post.
Antioquia: Pedrero, No. 86, May 25, 1926.

Family 2. Dacryomycetaceae

*356. Guepinia fissa Berk. Ann. Mag. Nat. Hist. **10**: 383. 1842.
On dead wood.
El Valle: Cordillera Occidental, No. *500*, June 11, 1929.
This is a fine collection. Patouillard (Tab. Anal. No. 689. 1889) gives spore measurements considerably shorter than in these specimens and infers that the spores are one-celled. This collection has spores 12–15 x 5–6 u, and distinctly 4–celled. His figure represents the species quite well, although the tips in these specimens are somewhat less lobed than in his figure.

*357. Guepinia spathularia (Schw.) Fries. Elench. Fung. **2**: 32. 1828.
On dead wood.
El Valle: Zarzal No. 384, May 13, 1929.
Santander: Puerto Wilches, No. *152*, June 18, 1926.

Family 3. Clavariaceae

*358. Pterula plumosa (Schow.) Fries, Linnaea **5**: 532. 1830.
On dead bark.
El Valle: Cordillera Occidental, No. *738*, June 11, 1929.

Family 4. Thelephoraceae

*359. Stereum australe Lloyd, Myc. Writ. 4 Letter **48**: 10. 1913.
On dead wood.
El Valle: 13 km. south of Cali No. *367*, May 14, 1929; Zarzal No. *386*, May 31, 1929.

Family 5. Polyporaceae

360. Daedalea repanda Pers.; Gaud. Voy. Freyc. 168. 1826.
On dead wood.
El Valle: Zarzal, No. *391*, May 31, 1929.
This collection is not typical of the species.

*361. Favolus brasilensis Fries, Elench. Fung. 44, 1828.
On dead wood.
El Valle: Between Cerrito and Palmira, No. *350*, May 23, 1929.

*362. Favolus rhipidium Berk. in Hooker's London Jour. Bot. **6**: 319. 1847.
On dead wood.
Tolima: Ibagué, No. *565*, June 20, 1929.

363. Hexagona tenuis (Hook.) Fries, Epicr. Syst. Myc. 498. 1838.
On dead wood.
El Valle: Between Cerrito and Palmira, No. *365*, May 23, 1929.
On dead limbs *Mangifera indica* L.
El Valle: 13 km. south of Cali, No. *366*, May 14, 1929.

*364. Lenzites striata (Sw.) Fries, Epicr. Syst. Myc. 406. 1838.
On dead wood.
Santander: Magdalena River, *144*, June 17, 1926.
Cundinamarca: Along Funza River, *682*, July 11, 1929
El Valle: Zarzal No. *387*, May 31, 1929.
The plants in collection number 114 are thin and the lamellae rather close. Otherwise the agreement with the species is close. Specimens in number *682* are more typical, but decidedly gray on the upper surface. Number *387* is quite typical.

*365. Polyporus fimbriatus Fries, Linnaea **5**: 520. 1830.
On dead wood.
El Valle: College N. S. de los Andes above Cali, No. 455, June 9, 1929.
In number *455* the hymenium is smooth toward the margin of the pileus and shows slight pore formation toward the base. *Hydnum multifidum* (Klotzsch) P. Henn. is a synonym, and collections are often more hydnoid than polyporoid.

*366. Polyporus gilvus (Schw.) Fries. Elench, Fung. 104. 1828.
On dead wood.
El Valle: Cordillera Occidental, No. 501, June 11, 1929.

*367. Polyporus hirsutus (Wulf.) Fries. Syst. Myc. **1**: 367. 1821.
On dead wood.
El Valle: Santa Ana No. *376*, May 20, 1929; Zarzal No. 465, May 31, 1929; Buenaventura, No. *224*, May 8, 1929.

*368. Polyporus lignosus Koltzsch, in Fries, Epicr. Syst. Myc. 471, 1838.
On dead wood.
Santander: Magdalena River, No. *161*, June 18, 1926.
This species differs from *P. zonalis* Berk. to which it is often referred, in that the context hyphae are thin-walled, but 3–6 u diameter, and with frequent cross walls. In that species they are up to 9 u diameter, the walls are very much thickened, and no cross walls are present.

*369. POLYPORUS MAXIMUS (Mont.) Overtholts, Scientific Sur. Porto Rico & Virgin Isl. 8:164. 1926.

On dead wood.

CUNDINAMARCA: Juntas de Apulo, No. *691,* July 11–13, 1929.

A common species of the tropics. Usually large and thin and with the hymenium considerably toothed.

*370. POLYPORUS OCCIDENTALIS Klotzsch, Linnaea 8:486. 1833.

On dead wood.

SANTANDER: Magdaena River, near Puerto Wilches, Chardon No. *162,* June 18, 1926.

ANTIOQUIA: Pedrero, No. *87,* May 25, 1926.

Chardon's number 87 is immature and rembles *P. hirsutus.*

*371. POLYPORUS OMPHALODES Berk. Kooker's Long. Jour. Bot. 15:172. 1856.

On leaf mold in the forest, perhaps attached to buried wood.

SANTANDER: Magdalena River, No. *135,* June 15, 1926.

The specimens so referred have a smoky-isabelline, zonate, slightly pubescent, reniform pilous up to 2.5 cm. broad, on a slender vetutinate stem 3–8 cm. long, 1–3 mm. thick. Spores sub-globose, brown, not truncate, strongly echinulate, 10–12 u diameter. Lloyd says the spores of this species are smooth. The species was included in *Fomes,* along with other similar ones, in Saccardo's Sylloge.

372. POLYPORUS PINSITUS Fries, Elench. Fung. 95. 1828.

On dead wood.

ANTIOQUIA: Ravine in Finca "Sorrento" Poblado, No. *46,* May 16, 1926.

EL VALLE: College N. S. de los Andes above Cali, No. *456,* June 9, 1929.

TOLIMA: Ibagué, No. *551,* June 20, 1929.

Chardon's numbers represent the form with pale colored hymenium. The form with the dark hymenium was not among these collections. The species is not always easily distinguished from *P. versicolor.* Number 551 is an intermediate form.

373. POLYPORUS SANGUINEUS (L.) Fries, Epicr. Syst. Myc. 444. 1838.

On dead wood.

ANTIOQUIA: Road from Pedrero to Fredonia, No. *88,* May 25, 1926.

SANTANDER: Magdalena River, No. 134, June 15, 1926.

El Valle: Buenaventura, No. *225*, May 8, 1929; Santa Ana, No. *337*, May 30, 1929.

Chardon's number 88 is hardly typical, lacking the smooth pileus surface usually so characteristic of the species and shown in all the other collections. It is hardly thick enough, however, for *P. cinnabarinus*.

A common species in the tropics.

*374. Polyporus versicolor (L.) Fries, Syst. Myc. 1:368. 1821.
On dead wood.
Antioquia: El Poblado, No. 79, May 20, 1926.
El Valle: College N. S. de los Andes above Cali No. *467* June 9, 1929.

*375. Trametes mollis (Sommerf.) Fries, Hym. Eur. 583. 1874.
On fence post.
El Valle: Cordillera Occidental No. *503*, June 11, 1929.

376. Trametes hydnoides (Sw.) Fries, Spier Syst. Myc. *490*, 1838.
On dead wood.
El Valle: Zarzal, *521*, May 13, 1929.

Family 6—Agaricaceae

*377. Panus rudis Fries, Epicr. Syst. Myc. 398. 1838.
On dead wood.
El Valle: San Pedro, north of Buga, No. *736*, June 4, 1929.

*378. Panus strigellus (Berk. & Curt.) n. comb.
Lentinus strigellus Berk. & Curt., Jour Linn. Soc. **10**:302. 1868.
On dead wood.
Santander: Puerto Wilches No. *154*, June 18, 1926.

The gills are not serrate in the species. It appears like a small form of *Panus rudis* Fries.

*379. Panus velutinus Fries, Epicr. Syst. Myc. 398. 1838.
On dead wood.
Santander: Puerto Wilches, No. *157*, June 18, 1926.
El Valle: Buenaventura, No. *223*, May 8, 1929.

While often referred to *Lentinus*, the species is better placed in *Panus* since the gills are not serrate.

380. SCHIZOPHYLLUM ALNEUM (L.) Schroet. Krypt. Fl. Schles. **31**: 553. **31**: 553. 1889.

On dead wood and on bamboo trunks.

EL VALLE: 13 km. south of Cali. No. *235*, May 14, 1929; near Cali, No. *308*, May 21, 1929; Zarzal No. *385*, May 31, 1929.

GASTEROMYCETES

Family 1—NIDULARIACEAE

*381. CYATHUS POEPPIGII Tul. Ann. Sci. Nat. III. **1**: 77. 1844.

On rich soil.

ANTIOQUIA: Medellín, No. *80*, May 21, 1926.

*382. CYATHUS STERCOREUS (Schw.) DeToni, in Sacc. Syll. Fung. **7**: 40. 1888.

On horse dung.

ANTIOQUIA: Medellín, No. *30*, May 8, 1926.

Family 2—LYCOPERDACEAE

*383. LYCOPERDON PUSILLUM (Blatsch) Fries, Syst. Myc. **3**: 33. 1821.

On the ground.

EL VALLE: Gardens at San Fernando, near Cali, No. *731*, May 18, 1929. (det. W. C. Coker).

*384. CALVATIA CYATHIFORMIS (Bosc.) Morgan.

On the ground.

CUNDINAMARCA: Wet meadows above Salto de Tequendama, No. *732*, July 6, 1929, (det. W. C. Coker).

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EXPLANATION OF PLATES

PLATE XXX

(Contributed by Dr. W. H. Weston, of Harvard University)

Synchytrium Phaseoli sp. nov.

A. Section of the stem of *Phaseolus vestitus* Hook. with the peripheral tissue showing numerous gall-like outgrowths surrounding the sori of the fungus. Mag. 15x.

B. Portion of a similar section, more highly magnified, showing immature galls not yet opened, in one a portion of the sporangial mass still remaining. Mag. 50x.

C. Galls more highly magnified showing their structure and relation to the superficial tissue of the stem. Mag. 75x.

D. Two galls, very superficial in this case, showing their relation to the host tissue, the structure of their walls, and a fragment of the delicate membranous, lining wall which surrounds the sorus of sporangia. Mag. 75x.

E. Sporangia, rounded out after being freed by the rupture of the gall, showing typical shapes and sizes. Mag. 500x.

F. Similar sporangia, recently cleaved out within the sorus, showing angular contour and flattened faces of contact. Mag. 500x.

G. Two sporangia of *Synchytrium aequatoriensis* Sydow for comparison showing their much larger size. Mag. 500x.

PLATE XXXI

(Contributed by Dr. W. H. Weston, of Harvard University)

Albugo Chardoni sp. nov.

A. Photograph of leaf of *Cleome anomala* H. B. K. showing the conspicuous pustules of the fungus chiefly at the bases and tips of the leaflets, scatteringly along the mid rib, with a few even on the petiole. x½ natural size.

B. Tip of an infected leaflet showing the conspicuous, crowded, erumpent pustules of the fungus, some of them already open, scattering masses of spores. Natural size.

C. A conidiophore from a pustule not yet emerged, still young, just beginning to form the first conidium. Mag. 500x.

D. A similar conidiophore with its conidium fully developed, and below it a collar-like zone looking as if the conidiophore were elongating by proliferation. Mag. 500x.

E. A developing conidiophore, the form and structure of which seem to indicate that proliferation is taking place. Mag. 500x.

F. Older conidiophore, bearing a conidium, recently formed and showing no differentiation of all thickness as yet. The conidiophore appears as if it had developed in successive segments by proliferating. Mag. 500x.

G. A similar conidiophore, the maturing conidium just beginning to show the differentiation in wall thickness. Mag. 500x.

H. A similar conidium, the wall now fully differentiated. Mag. 500x.

I. Mature conidiophores showing typical form and structure. Mag. 500x.

J. Terminal conidia showing characteristic size, structure, and thickness of wall. Mag. 500x.

K. Later conidia showing structural features and the distinctive wall thickening. Mag. 500x.

L. Copy of Lagerheim's figure of a conidium of *A. tillaeae* with wall thickening of the same general type as that of *A. Chardoni*. Mag. unknown.

PLATE XXXII

A. Leaf of *Bromelia Pinguin* L. with lesions produced by *Peltella insignis sp. nov.* An ascus with spores.

B. *Asterina melastomatis* on *Miconia* leaf.

C. Showing distribution of *Placoastorina antioquensis gen. et. sp. nov.* on *Miconia desmantha* D. C.

D. Cross section of stroma showing arrangement of loculi in *Placoastorina antioquensis*. Toro.

E. Perithecium, ascus and spores of *Phacostigme Isazanum sp. nov.*

F. A vermiform appendage of *Irene sororcula* (Speg.) Stev.

PLATE XXXIII

A. Leaves of *Tontanea canescens* (Willd.) Standley showing distribution of fungus *Irenina obtusa sp. nov.* A spore of fungus.

B. Leaf of *Miconia Toroi* Gleason showing red discolorations caused by *Asterina Uribei sp. nov.*

C. Showing necrotic lesions on leaf produced by *Asterinella antioquencis sp. nov.*

D. Distribution of *Asterina Bulluciae* on leaf.

PLATE XXXIV

(Photographs by W. R. Fischer, of Cornell University)

A. *Ulcodothis andina sp. nov.* on leaf of *Mikania Ruiziana.*
B. *Trabutia calarcana sp. nov.* on leaves of undetermined Malphigiaceae.
C. *Trabutiella Diazii sp. nov.* on leaves of *Machaerium sp.*
D. *Phyllachora Lasiacis* Sydow on leaf of *Lasiacis sp.*
E. *Sphaerodothis columbiensis sp. nov.* on leaf of *Pennisetum bambusiforme.*
F. *Phyllachora bonariensis* Speg. on leaves of *Guadua latifolia.*

PLATE XXXV

(Photographs by W. R. Fischer, of Cornell University)

A. *Phyllachora perlata* Sydow on portion of a leaf of *Polymnia curylepis.*
B. *Camillea globosa* (Lev.) Lloyd on dead wood.
C. *Clypeotrabutia montserratis sp. nov.* on leaf of *Parseola coerula* (x5).
D. *Phyllachora Toroi sp. nov.* on leaves of *Cestrum lauriflrum.*
E. *Phyllachora vallecaucana sp. nov.* on leaf of *Buettneria sp.*
F. *Camillea cyclops* Mont. on dead wood.

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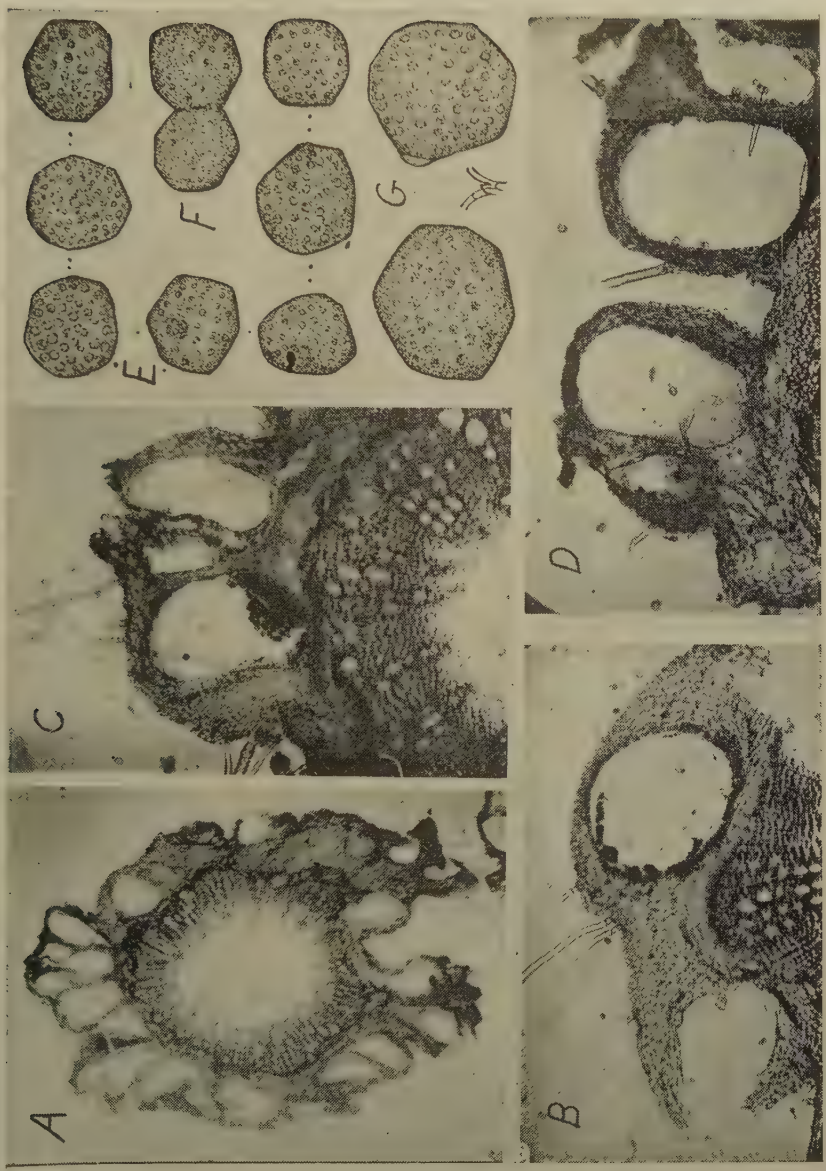

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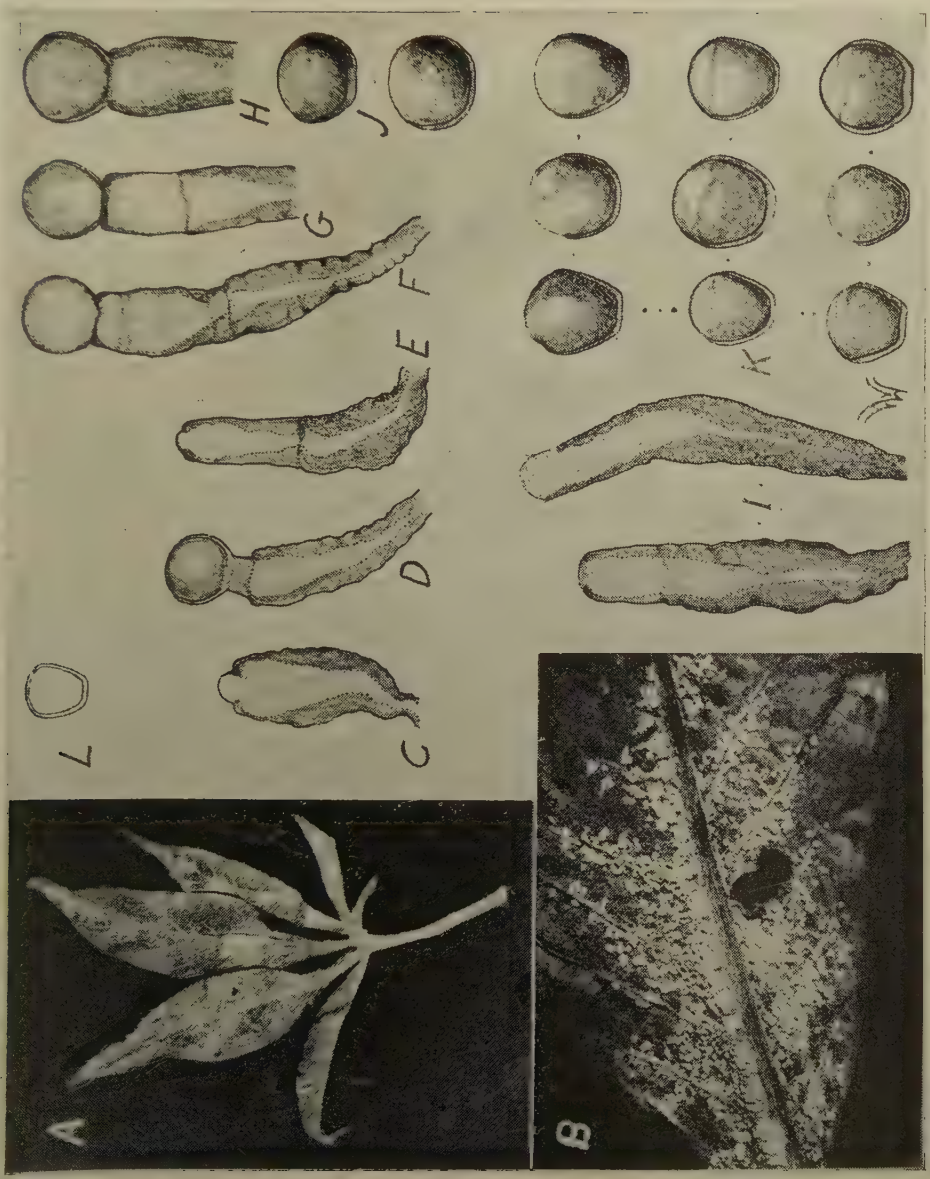

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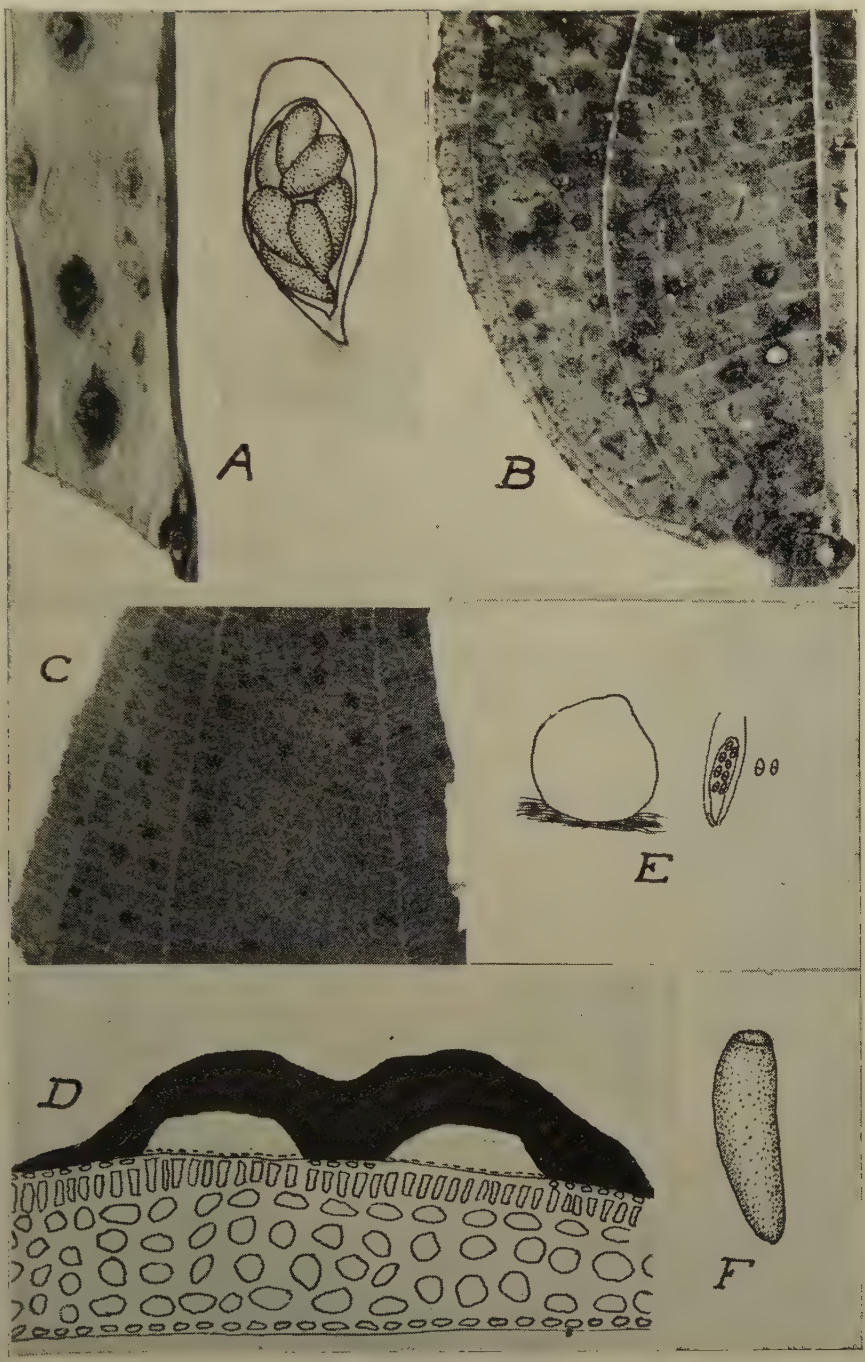

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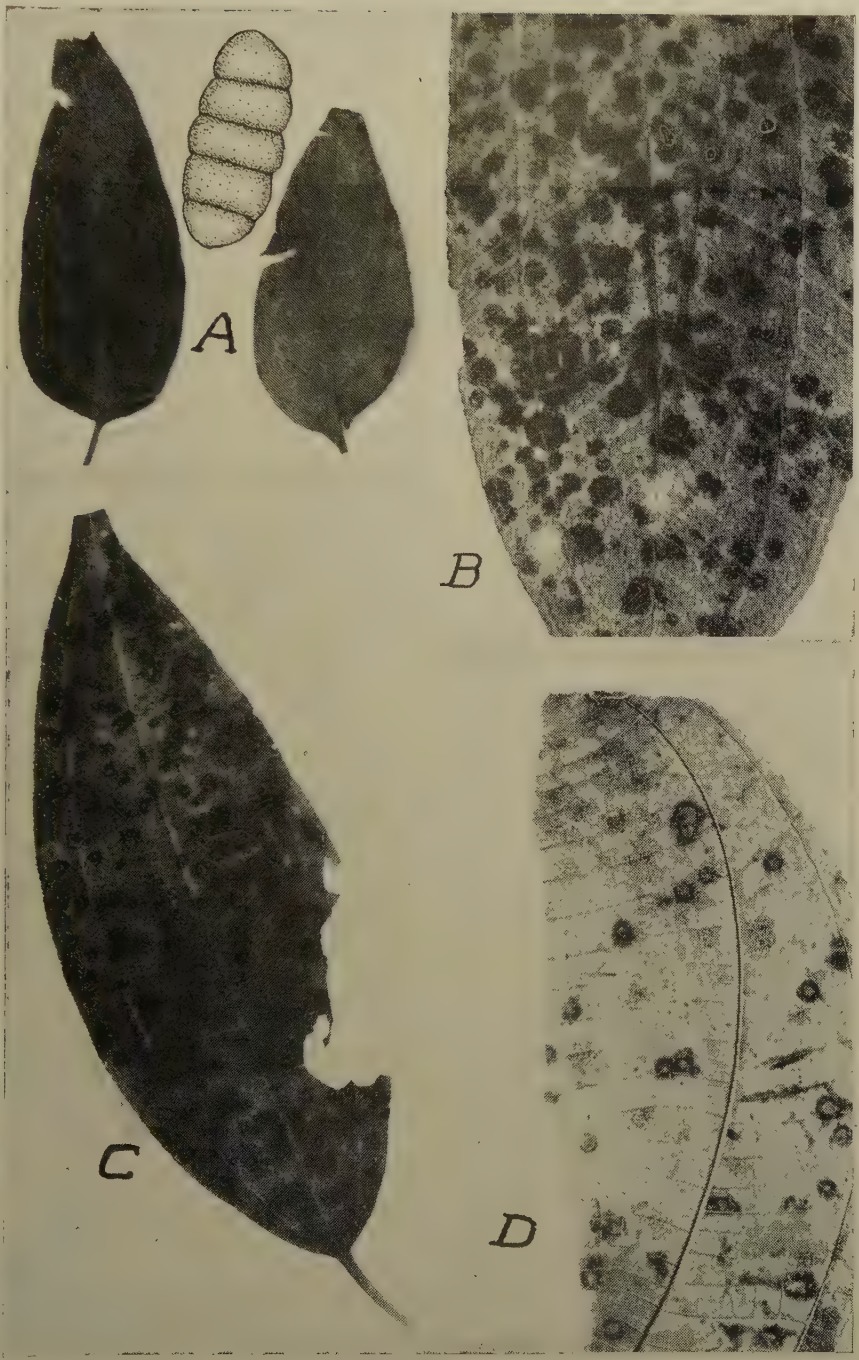

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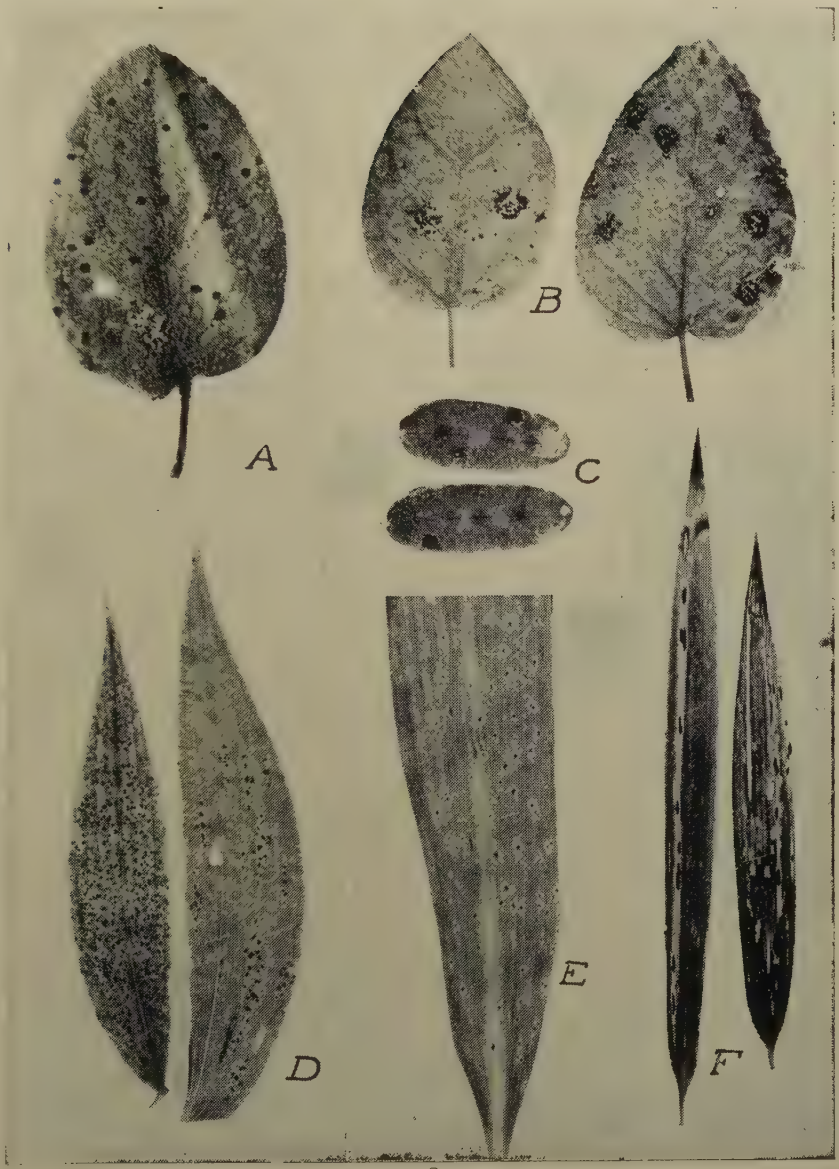

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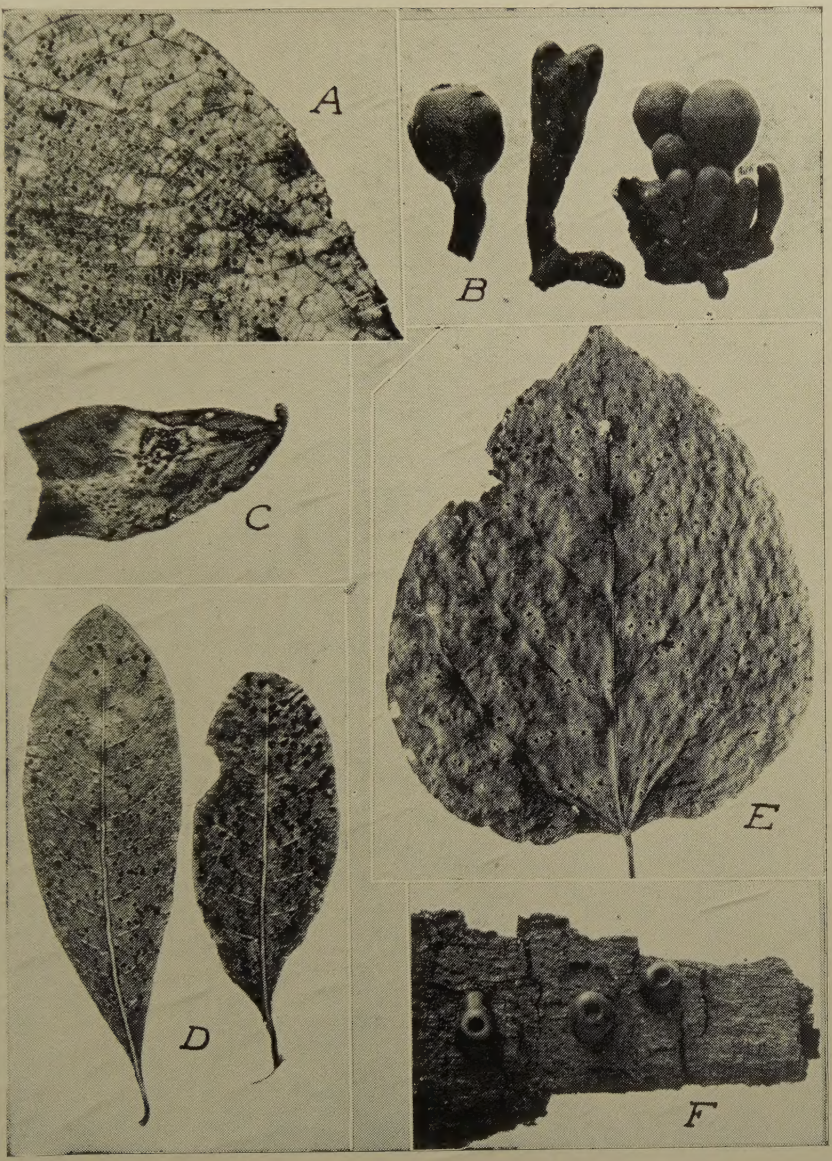

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